

Read Stove Conference Between Manufacturer, Retailer and Salesman in This Issue.

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AMERICAN ARTISAN and Hardware Record

Vol. 87. No. 12.

620 SOUTH MICHIGAN AVENUE, CHICAGO, MARCH 22, 1924.

\$2.00 Per Year



The POINTER RANGE

WE want you to judge the quality and construction of this specialized range—look it over thoroughly now—on your sales floor.

Sell a High Quality Range at a selling price—"Here's How"

THERE is nothing mysterious about the great popularity of the Pointer Range. We have just simply cut out the excess production costs by confining our manufacturing to but one size and style of range.

This increases our output, simplifies manufacturing and makes our mounters and molders more efficient.

Because of our great savings in production costs we can put extra high quality into the Pointer range and still keep its price attractively low.

We are range specialists, specializing in building a superior range that is standard in size and style.

The Pointer is a range you'll like to sell—it is the range most of your prospective customers will buy.

You, like the hundreds of other new Pointer dealers, will find the Pointer agency exceptionally profitable.

Let us tell you all about it NOW

GOHMANN BROTHERS AND KAHLER

New Albany, Indiana



The Trade Mark of

A "Dog-on" Good Stove

THE SUPER-SMOKELESS FURNACE

FOR BURNING SOFT COAL SMOKELESSLY

SUPER-SMOKELESS Furnaces are now heating thousands of homes with soft coal—WITHOUT SMOKE. Their remarkably clean operation astonishes and delights every heater man and home owner. The smoke and soot are actually consumed as fuel and definite reductions in coal requirements invariably obtained.

The scientific SUPER-SMOKELESS feature is an exclusive UTICA HEATER COMPANY improvement and is embodied in the well known NEW IDEA Pipeless and SUPERIOR Pipe Furnaces in sizes for all requirements.

Send for complete information and dealer proposition

UTICA HEATER COMPANY

UTICA, New York

218-220 West Kinzie Street, Chicago, Illinois



"Tune In" With a High Power Business Builder

The Radio

ENTERPRISE

Furnace

Broadcasting Comfort

BE prepared to cash in on the big demand for heating equipment that is sure to come with the unprecedented increase in home building.

The Radio Enterprise Furnace has won for itself a reputation for satisfaction, service and economy, and is without doubt the Furnace that will lead in sales, and successfully meet all competition.

Made by the South's master stove builders, who have for more than fifty years manufactured high-grade cooking and heating equipment.



Live dealers are urged to write us for catalog and full information.

PHILLIPS & BUTTORFF MFG. CO.

NASHVILLE, TENNESSEE

Founded 1880 by Daniel Stern

Thoroughly Covers
the
Warm Air Furnace
Sheet Metal, Stove
and
Hardware Interests

AMERICAN ARTISAN and Hardware Record

Address all communications
and remittances to
AMERICAN ARTISAN
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THIS IS FOR YOU!

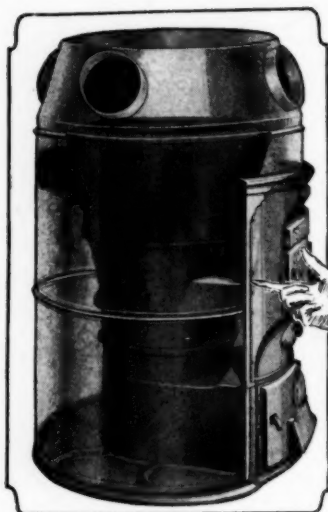
AMERICAN ARTISAN courteously invites and urges you to participate in the privileges and benefits of its Service Department. Any phase of the warm air heating and sheet metal industries or stove sales and window display questions may be profitably and instructively discussed in this department. If your problem is a knotty or technical one, submit it to the Service Department and secure the benefits of the opinions of other men. It is an exchange information department, and you are asked to relate your accomplishments and tell how you have surmounted difficulties. Wherever possible rough sketches or photographs should accompany the questions or suggestions, as they always make clear the points involved. Use this Service Department freely; it is yours.

ALPHABETICAL INDEX AND CLASSIFIED LIST OF ADVERTISERS, Pages 44-46-48.

INTERNATIONAL



HEATERS



Sell Him An International Carton

THE next time a prospect drops into your store to inquire about a furnace sell him an International Carton.

The following features of construction will insure your customer's complete heating satisfaction at low yearly cost.

Self-Cleaning Radiator—Never wastes heat thru insulating effects of soot. Never wastes a minute of your customer's time to clean it.

Straight-Side Firepot—Ashes do not collect at its sides to deaden its heating surface.

Triangular, Herringbone Grate—Gives shearing cut. Cleans ashes evenly. Gives fire even supply of air. Can be dropped with one simple operation to remove clinkers.

Double Casing—With air space between. Keeps heat in much more effectively than a single casing.

Deep Sealed Cup Joints—Makes gas leakage impossible.

Large, Roomy Ashpit—Permits easy removal of ashes.

It is such features, in addition to the strength of every part, that makes the Carton a heater of unusual fuel economy, easy to operate and low in its cost of up-keep.

If you want to heat your customer's homes on a basis of true economy—sell International Carton Furnaces. Catalog 1563-R gives complete description. Copy on request.

INTERNATIONAL HEATER COMPANY

UTICA, N. Y.

NEW YORK

CHICAGO

CLEVELAND

NASHUA, N. H.

INTERNATIONAL



HEATERS

Iowa Sheet Metal Men Have Blazed Trail for Other States to Follow Toward Better Profits



THE Iowa Sheet Metal Contractors' Association has taken a step which puts it far ahead of any other state association in sheet metaldom, except one.

And it has done this in spite of the fact that the Association is only three years old, and in spite of the fact that at the time of its convention it had only sixty members.

On pages 21 to 24 of this issue will be found a report that R. E. Pauley, the former Secretary and now President of the Association, made to the Board of Directors and which was considered so comprehensive by them that they authorized its reading to the convention and also its publication in *American Artisan*.

This report was the means of "selling the full time, paid Secretary" to the members, but aside from this it touches on several very important features of the sheet metal business in such a forcible and clear manner that it is worthy of more than passing attention.

Mr. Pauley cites the fact that a sheet metal contractor must combine in himself four different persons—the dreamer and thinker, the manufacturer, the salesman and the artisan.

Frequently he never passes from the stage of the artisan, even though he may be in business for himself. He knows how to do a job well, but he cannot sell the job for what it is worth. His price must always be lower than anybody else's if he is to get the contract.

And the chief reason for that is that he does not know what the job costs him.

In this connection it is interesting to note some of the suggestions from members as to what particular activity should be featured by the Association during 1924.

A large percentage of these suggestions pertained to the matter of price competition.

Some even went so far as to advise "uniform" prices.

Others would boycott supply houses that sell at wholesale to "every Tom, Dick and Harry."

Still others would stop manufacturers from selling to general contractors, lumber dealers and others not in the "regular" sheet metal or furnace installation business.

All of these suggestions—if followed—would lay the Association and its officers and individual members liable to prosecution for infraction of the anti-trust laws.

It is natural, when things are not going as we should like them to go, that we look to "the other fellow" and try to make him mend his ways, before we even stop to consider ourselves or the faults for which we may be to blame.

But while this is the natural thing, it does not necessarily follow that the remedy will be found in that manner.

But the Secretary is not to be a schoolmaster in the old sense of the word; he is rather to be a bearer of experience and actual facts, properly correlated, pertaining to the sheet metal business, from which the sheet metal contractor will gain the information that will make him a better business man.

After what has been done in Iowa—and we can set it down as an accomplished fact that the Iowa Sheet Metal Contractors' Association is a better organization today than two weeks ago, because of what it did in Fort Dodge—there is not a single state association that can give any good reason why a state Secretary—on full time pay—should not be engaged and set to work in its state.

The sheet metal contractors are big enough to pull themselves out of the mire of unprofitable and improper business conditions in which they find themselves.

But they cannot hope to do it unless they make a real effort.

Iowa is showing the way.

Random Notes and Sketches.

By Sidney Arnold

R. B. Strong, of the "Homer Harmony Hummers," met one of his chums the other day who was all bandaged up.

"You seem to have been in a serious accident."

"Yes," said the bandaged person, "I tried to climb a tree in my car."

"What did you do that for?"

"Just to oblige a lady who was driving another car. She wanted to use the road."

* * *

Charlie Nason, the Milcor salesman in Michigan, has his opinion of the chronic shopper of the female species, as witness the following bit of "conversation" which he sent me:

Salesman (wiping the perspiration from his brow—"I'm afraid, madam, we've shown you all our stock of linoleum, but we could get more from our factory."

Customer—"Well, perhaps you had better! You see, I want something of a neater pattern and quite small—just a little square for my bird cage!"

* * *

My good friend, Roy Soule, who has just gotten back into the business paper work, recently published a little story in his *Hardware Dealers' Magazine* which is so good that I want you to read it. The story had for its headline these words, "Whom Are You Working For?" and runs as follows:

A wealthy employer recently called a number of his employes in "on the carpet" and promulgated the rather surprising question:

"Whom are you working for?"

The gang, naturally, was nonplussed. "Why, you, of course!" answered several in unison, and this was echoed by the others, in mumbled words or nods of agreement.

"That's what I thought!" snapped the boss. "And that's just what I don't want!"

When surprise had rippled round the circle and a few had given vent to gasps and exclamations, he proceeded:

"I don't want you to work for me. I don't want anybody to work for me. Don't you think I can swing my own job?"

All agreed that he had proved that—and then some.

"Sure I can!" he said brusquely. "Nobody can hold my job quite as well as I believe I can. I know my job and I know myself, and I'm right where I think I belong. And I'm not working for anybody, either!"

This was admitted.

"That is, I am, and I'm not," he proceeded. "I'm serving others by working for myself. If I quit work, I wouldn't serve myself, or others. Now what I want you fellows to do, every man-Jack of you, is to forget me, and work for yourselves! Get the best out of you, that's in you, into your work, and you'll help both of us 90 per cent more. Don't work for me. Work with me, but work for yourselves. Work as if you owned the establishment, which you do—because you own your own jobs, and without those jobs where would the establishment be? Do the best you can, and I'll do the best I can, and each of us will work for ourselves—which means for the establishment. Really the establishment is the boss, not me. I'm working for it, too. And what is the establishment? Well, boys, it's the same thing as the world. It's our little world, and we're all working to make it better. We'll do that, if each of us gives it the best we've got! Work for yourself; be honest with yourself, and I'll do the same. In that way we'll be honest with the establishment—and can't lose."

* * *

Harry Van Bayse, who makes American boiler plate furnaces,

takes his lunch in a restaurant that receives many of its supplies from the proprietor's dairy farm.

Occasionally there arrived an egg inscribed with some girl's name. As this would usually cause a mild flutter among the young men patrons, the proprietor of the restaurant did not object.

But one day Harry got an egg marked "Cleopatra."

He immediately called a waiter.

"Take it away," he directed, incisively. "Next we'll be hearing from Helen of Troy."

* * *

Dave Farquhar will probably never buy an "iron" hat again. He wore one of those wash basin styles that Uncle Sam originated some years ago, and when he returned to "civies" he swore off for a while, but when the ducks began to trek north, about three weeks ago, Dave was inveigled by a smooth-tongued individual to invest in one of those low-crowned, narrow-rimmed things that were known in my youth as Derbies, and he brought it with him, riding on his ears, to the convention of the Wisconsin sheet metal contractors in Milwaukee.

Something happened to that hat on Tuesday. It was all right, apparently, when I saw it, about five o'clock, but when I shook hands with him just before leaving Wednesday afternoon he was wearing one of those very soft "crushers," and Ros Strong told me that the awful calamity took place somewhere, at some time during the intervening twenty-four hours, he not being at liberty to give the actual facts to the public, but I have since learned that Harvey Manny kicked a hole through it in a demonstration of his suppleness.

Somebody intimated that Harvey was getting old and that he was losing his athletic prowess.

In order to prove that he was still able to kick as high as anybody in the crowd, Dave's hat was chosen as the object of the kicking, and true to his claim, Harvey did the highest kick and with such force that the roof went out of the iron hat.

C. S., "Doc" Weatherly Capitalizes on His Ability and Experience to Increase His Business.

Grand Rapids Furnace Patriarch Uses Individual Solicitation Letter to Create Furnace Repair Business and Publicity for Firm.

C. S. WEATHERLY, 949 Cherry Street, S. E., Grand Rapids, Michigan, calls himself "The Real Furnace Man" in red letters, and we have unearthed abundant evidence of Mr. Weatherly's ability to bear up under this meaningful appellation.

Mr. Weatherly believes in solicit-

Mr. Weatherly in soliciting his furnace repair business.

In addition to circular a personal letter was sent. In this letter Mr. Weatherly explained what advantages were to be gained by having the furnace looked over at the present time. And here he had human psychology figured out to a close

1924

Mr. C. S. Weatherly:

I wish you would have our furnace cleaned about _____

_____ and if it needs repairing do it at the same time. If the repairs are large, report to me before ordering material.

Res. _____ Phone _____

- ☐ If you wish us to call and see about a new furnace. Mark X in square.
- ☐ If your furnace does not warm the house. Mark X in square.

All city orders received before May 31st, for cleaning furnaces, will be done for 75c less than the regular price or \$1.75 for each furnace.

We have trained furnace men for this work.

What can you expect if you employ novices.

We examine every furnace cleaned.

Wife Says--

_____ to her husband—let us finish the job right and get WEATHERLY to do our furnace work.

Card Sent Out with Letter to Patrons, Soliciting Furnace Repair Business, by C. S. Weatherly, 949 Cherry Street, S. E., Grand Rapids, Michigan.

ing furnace repair business so as to get the work which he knows is to be had at a time when it is most convenient for him to do it. By doing this he proves to his patrons that he has their interests at heart; whether they appreciate the service immediately or not, they are certain to do so later.

The accompanying illustration is that of the mailing circular used by

point. He sets forth all the advantages of having the furnace looked over before housecleaning time. He tells the patron how easy it is to forget the furnace when thinking of vacations and other summer activities and then as a clinching insurance against procrastination, he makes a special offer as the final inducement extending to May 31, 1924.

He does not neglect the wide possibilities open to him by drawing a vivid picture of the unnecessary and entirely avoidable discomfort and expense of having the furnace out of order next fall when it is most needed.

Reference is made to the postal card in the letter and the complimentary closing of the letter can be presented in no better way than by quoting; it is capital indeed and runs as follows:

"Lost: 'A Comfortable Home' by not having Weatherly, 'The Real Furnace Man,' install or remodel your furnace.

"A correct furnace installation is a 'Real Man's Job.'"

Ferry C. Houghten Is New Secretary of Heating and Ventilating Engineers.

Ferry C. Houghten has been appointed Secretary of the American Society of Heating and Ventilating Engineers, to take the place of C. W. Obert, whose resignation went into effect at the close of Society's year. Mr. Houghten has been connected with the U. S. Bureau of Mines in Pittsburgh since 1918, and in 1920 he became assistant to Dr. Allen, then Director of the Society's Research Laboratory. Recognizing his ability the Society invited him to become Secretary.

A graduate of Olivet College, Olivet, Michigan, he obtained an "MS" degree from the University of Washington. He is also a member of the American Society of Mechanical Engineers and he belongs to Sigma Xi, the honorary scientific fraternity.

Mr. Houghten has supervised some important scientific problems in the engineering field, such as investigations of Human Reactions to High Temperature and Humidities, Comfort Zone, Critical Velocity of Steam in Pipes, Air Infiltration in Buildings, and Heat Transmissions.

Some men are born to do good work only with their hands, others only with their heads. A salesman must do both.

Miles Maintains That Furnace Fan Should Not Be Operated All the Time.

Fan Manufacturer Says That Once Started Circulation of Warm Air Will Care for Itself.

THE following helpful and instructive article on furnace heating with fans was prepared by John C. Miles, of the Miles Furnace Fan Company, Cleveland:

Essentials of Forced Air Heating.

A great deal has been said in recent years about "Forced Air" or "Fan Furnace" heating, but notwithstanding the amazing revelations made at the University of Illinois and the United States Bureau of Mines regarding the forced air system, to say nothing of the 10,000 or 12,000 schools, theaters and large churches that have been using the fan system for the past forty years, little progress has been made.

It is true that a small group of furnace men have tried, on a great many occasions, to adopt the fan principle, but the main feature and essential requisite has usually been overlooked—that the system must be both gravity and mechanical.

It is not at all practical to adopt the fan for constant use in residence heating. Therefore, provision must be made for gravity circulation when the fan is not in use.

The increased capacity of the furnace due to the fan is only necessary for peak load requirements, at intervals of short duration.

The constant use of pressure to supply air is wholly unnecessary, because natural circulation, once established, will suffice for all practical purposes.

The main thing is to get the job started. Get the heavy cold air out of the pipes, heat the pipes themselves to a temperature of 100 to 110 degrees, and the stack effect and difference in temperature of the air inside and outside will maintain the desired circulation; hence, the function of the fan is to establish circulation when the system is sluggish and to increase the capacity per cent in the furnace capacity by when peak loads are demanded.

The tests at the University of Illinois developed an increase of 288 the use of the fan. This, of course, was a laboratory test, or we might say, an extreme performance; therefore, by dividing their test by four (which would seem like a safe practice) we have an increased capacity of 72 per cent over natural circulation.

The mean temperature in Chicago or Cleveland is around 380 degrees, but we are obliged to design our plant for zero; therefore, 38/70 of our plant is held in reserve for peak loads, which means that the furnace, grate area and pipe sizes should be designed for zero if we fill our guarantee. A dozen or more trips, figured at a dollar per hour, eats up all the profit and into the red ink of the ledger. The answer to this is that if we install a fan on every job, there will be no expensive "call backs" because:

First, you are positive you have 72 per cent in reserve.

Secondly, circulation to each and every room is assured.

Therefore, if your fan system is so designed that the gravity circulation is not interfered with when the fan is not running, and that the fan builds up a pressure to overcome the resistance in the system, it is almost certain to produce the desired result.

Cost of Fan Not Prohibitive.

It is folly to talk of the increased cost being prohibitive. As a matter of fact, the fan system is cheaper than the gravity. We have seen twice the cost of the fan spent on revamping, and in five cases out of ten the profits are spent bluffing the owner into paying for a system that doesn't work satisfactorily, the reason for which cannot be found.

Another proof that the fan system is cheaper:

A 24-inch grate has 453 square inches, approximately. Start the fan, add 72 per cent to the capacity

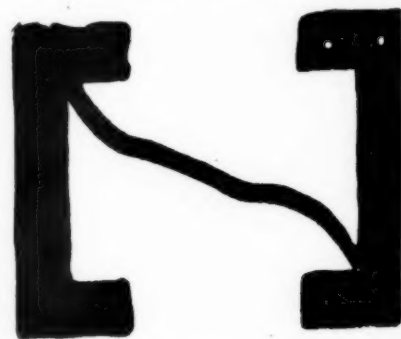
and we have 780 square inches, equivalent of more than a 30-inch grate. Now, if a 24-inch grate had a capacity of 100 units and a 30-inch grate had a capacity of 175 units, and the 175 units are only needed in the morning and in very cold weather, would it not be better to obtain this increased capacity along with increased efficiency rather than running a sluggish furnace 75 per cent of the time? It is a safe estimate to say that the full load of a furnace is needed less than 25 per cent of the heating season, so if the gravity system is designed for, say 20 degrees, with a fan that can be used at will, which will increase the furnace capacity to the full requirements, it would seem that this is the solution.

Show-Me-Man Suggests Sheet Metal Division for Mr. Carpenters' Chimney.

In reply to the inquiry of Edward T. Carpenter on page 18 of our March 8th issue, the following letter has been received:

TO AMERICAN ARTISAN:

Referring to inquiry of Edward T. Carpenter, Louisville, Kentucky, in your March 8th issue.



Diagonal Division in Chimney.

Of course, each furnace should have a separate chimney but if only one is available it can be used. We refer you to pages eighteen and nineteen, AMERICAN ARTISAN, issue May 12, 1923. (No doubt, Mr. Carpenter keeps all copies of AMERICAN ARTISAN.) The user had much trouble for five years. His chimney was 9 inches by 12 inches inside. The diagonal division shown in Sketch Number 5 reached from the bottom of the chimney to about four inches above the top edge of the

smoke pipes. He has had no trouble since.

Yours truly,

Warm Air Study Club of Security Stove & Manufacturing Company, Kansas City Missouri.

The sketch referred to is shown in the accompanying illustration.

St. Clair Foundry Corporation Buys Patterns of Summit Warm Air Furnaces.

It is announced that the St. Clair Foundry Corporation, Belleville, Illinois, of which Richard Wiechert is President, has bought the patterns of the Summit warm air furnaces, formerly made by the Summit Stove Company, Morrison, Illinois, and that a full run of sizes of this high-grade furnace as well as repairs for them can now be obtained from the St. Clair Foundry Corporation.

Lichtenwalner and Couch Join Sales Staff of International Heater Company.

H. J. Lichtenwalner of Elizabeth, New Jersey, well and favorably known consulting engineer, has joined the sales force of the International Heater Company.

Mr. Lichtenwalner has for the past several years served the trade in his community as consulting engineer specializing in steam, vapor and hot water systems. He is well qualified to serve the trade as a representative of the International Heater Company.

G. R. Couch of the firm of G. M. Couch and Sons, Hartford, Connecticut, has returned to the sales force of the International Heater Company, Utica, New York.

Mr. Couch is well known by the trade in Massachusetts and Connecticut, having traveled that territory for the International Heater Company from July, 1918, to January, 1922. When he resigned, in order to devote his entire attention to his company's business in Hartford.

Mr. Couch will travel southeastern Massachusetts, eastern Connecticut

and the state of Rhode Island.

His knowledge of International heaters, gained through his former service with the International Heater Company and through many years of retailing these heaters in Connecticut, places him in an excellent position to serve the trade in the territory which he will cover.

How Can You Make This Double Flue Chimney Draw?

G. T. Richter, one of our Pennsylvania subscribers, has a problem that he wants your help in solving.

Here is his letter:

Why Will This Double Flue Chimney Not Draw?

TO AMERICAN ARTISAN:

Being a subscriber to your magazine, I am accepting your invitation and submitting a problem to you that has had me guessing for about three months.

It is a problem of draft which is causing all of the trouble. Herewith you will find a sketch of the chimney

ney which is in the house at the present time. This chimney as shown, is made up of two compartments 7 inches by 10 inches each. The total height from the basement to the top is about 40 feet straight and air-tight, and is lined with regular flue tile. The partition between the two openings was broken down from the basement a distance of about 6 feet. The height from the boiler outlet to the place where the 9-inch smoke pipe enters the chimney is about 6 feet. This chimney had two revolving flue caps on the top but upon suggestion they were removed. The boiler has a capacity of 1,500 square feet and is of the water tube type.

The action is something as follows: The fire just glows; there does not seem to be any draft. When coal is put on the fire in the evening, the following morning it is still there in spite of the fact that the drafts have been left open; in fact, a number of times the fire has gone out. According to the combined area of this flue, I am under the impression that the area is large enough for this size of boiler; also, the height seems to be satisfactory.

There are no other buildings near this one, and the top of the chimney is about 10 feet above the highest point on the roof.

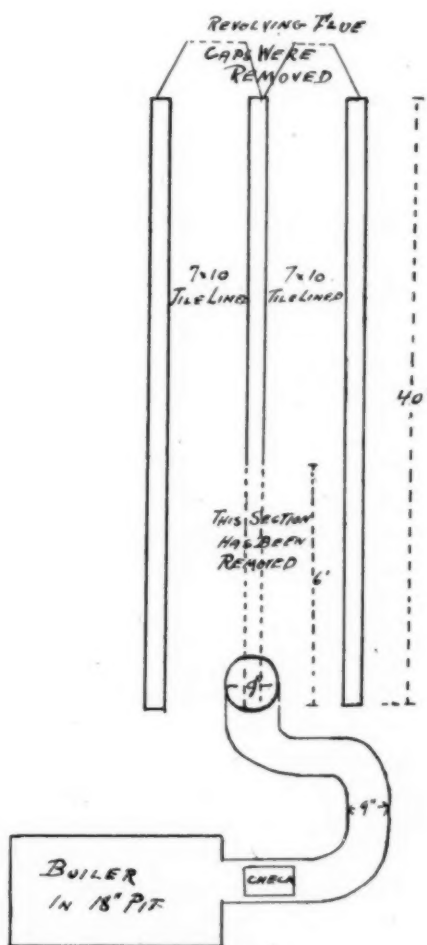
I am under the impression that this partition between the two flue areas is causing the trouble, but it is the question "Why" that has me stopped.

Can you suggest any reason why this chimney does not have a better draft? The removal of this partition would be an expensive proposition and before doing so, I should like to have some advice as to whether this would overcome my difficulty or not. Any explanation that you could give as to why this chimney does not work satisfactorily or any suggestions that you could make to overcome the difficulty would be very much appreciated.

Yours very truly,

G. T. RICHTER.

Send us copies of your advertisements.



Why Does This Chimney Not Draw?

Business, Like Love, Says "Fitting Remarks," Is Not Good for Him of a Weak Heart.

W. E. Lamneck Company, Columbus, Sees Many Factors Pointing to Good Business for 1924.

FOR those business heads who are inclined to be more skeptical concerning the 1924 business outlook than would seem justified at the present time, the following little treat from *Fitting Remarks*, the charmingly interesting little house organ of the W. E. Lamneck Company, 416-436 Dublin Avenue, Columbus, Ohio, will be particularly gratifying:

"We think the cover on this issue of our little house organ very appropriate, and 'fitting remarks' can well be made of it at this time. It



This may be leap year but we can't expect her to make all advances. Faint heart never won fair lady, you know.

is seldom that we find business good for him who nurses the faint heart. On the other hand, it is seldom that he who goes after business with courage and determination finds himself in alarming circumstances—at least comparatively speaking. This year should return very good business for them who are willing to bring it in.

"The present outlook is anything but distressing. In fact, poor business at the present time is but sectional, and very good business is seen in the offing by business staticians whose opinions are regarded as thoroughly reliable.

"Building and related industries are going forward on a scale every bit on a par with 1923, which proved to be an unprecedented year for construction work. In fact, the volume of building permits issued throughout the United States in re-

cent months indicates that operations will tax the capacity of the building trades.

"The steel business has accelerated. If the automobile industry can retain the pace already set it is not unlikely that 1924 will see the greatest year in the history of the business. Other lines of business which have been somewhat at a standstill are falling in line and going ahead with renewed vigor.

"Business generally can be expected to go progressively better as we get farther along in 1924. So, with the pendulum actually swinging favorably, there is little chance of a reversal and no reason for hesitancy in stocking for future business far in advance."

When Your Competitor Talks Price, Quality and Service Argument Is Your Best Come-Back.

The installer whose only argument is "low price" has no real argument, for the low price does not mean anything unless along with it is the same quality of the furnace, the same class of work and the same service as that of the higher price.

This point is brought out in an excellent manner in a unique folder recently received from the International Heater Company, Utica, New York, and Chicago, on the front of which appears this caption, "When Your Competitor Talks Price."

Incidentally, this folder is very cleverly gotten up. It is addressed to the furnace installer, and as you start to open it, there is found a well balanced "quality" sales argument, the text of which impels the final unfolding of the mailing price, and when completely opened we have a full size reproduction of a page advertisement in the March 15th issue of the *Saturday Evening Post*, flanked on each side with in-

vitations to the house owner to come in and get "further information," the inside of the folder being intended for a window placard.

The page advertisement tells a well written story of a Carton furnace which after 60 years' service is still being operated to the owner's complete satisfaction.

A letter from the owner and pictures of the house and the furnace back up the story.

Even a fifty dollar difference in the price would not make much of an impression on a prospect under such circumstances.

A. Y. McDonald Manufacturing Company, Omaha, Goes Into Furnace Business.

P. A. Williams, Sales Manager, A. Y. McDonald Manufacturing Company, Omaha, Nebraska, announces that the Omaha branch of his company has gone into the furnace, furnace pipe and fittings, and register business at Omaha, in addition to their regular business.

Prior to taking on the new line, the A. Y. McDonald Manufacturing Company made pumps, cylinders, well supplies, plumbing supplies, and brass and iron goods for water, steam and gas.

Phillips & Buttorff, Nashville, Now Established in New Foundry.

The new foundry of Phillips & Buttorff Manufacturing Company, Twelfth Avenue North, Nashville, Tennessee, has been completed and occupied, giving the company what is now said to be one of the largest and most complete foundry plants in the Southern states.

The new plant is three stories in height, 100x136 feet, making the company's total foundry properties about twenty acres. This unit will be used for the manufacture of warm air furnaces.

Watch your book accounts to see that they do not reach such proportions that all your profits remain tied up in that way.

Whipp Explains Some of the Common Faults in Fan Design and Application.

Says Many Engineers Believe It Only Necessary to Increase Speed of Fan to Create Proper Suction.

MANY engineers labor under the impression that a fan is simply a paddle wheel that must be revolved in order to do the work for which it was constructed. If it does not do the work properly at one speed, they generally believe it to be only necessary to increase the speed to effect the desired result.

Frederick G. Whipp has contributed some very valuable data on fans in a paper which he read at the Engineers Club, London, at a meeting of the Institute of Heating and Ventilating Engineers. This paper was published in two parts, appearing in the December and January issues of *Domestic Engineering*.

The fault finder is usually accorded a cool reception whatever be his sphere of activities, so that perhaps the above title might have been more suitably chosen. However, the author wishes it to be clearly understood that he does not pose as a critic in any way with regard to the subject under treatment, and although the title may suggest otherwise, it is not intended or implied that this treatise criticizes the design of any particular make of fan, or that the writer wishes to lay claim to being in a position of knowing more about any particular class of fan than their respective designers, and in view of this fact no mention has been made of individual makers' names or marks.

I wish to thank the Chairman and committee of the institution for their courtesy in inviting me to place this paper before you and trust that some at least of the observations dealt with may prove interesting and perhaps helpful to those of my listeners who are either directly or indirectly associated with the fan industry.

As the majority of the cases treated are of a practical nature, an attempt has been made to preserve a practical atmosphere without the

introduction of intricate academical considerations, which, although very necessary for actual research or design, are much more comprehensible when compounded in book form rather than in lecture. Any theory introduced has only been employed where it is necessary to do so in order to illustrate or emphasize a particular observation. Talking of theory, a great deal has been written on the subject of "Theory versus Practice," and I think it is safe to

FURNACE FOLK! ATTENTION!

To AMERICAN ARTISAN:

Will you please let it be known through your magazine that I would like to hear from party with prices on a cheap priced furnace as distributor in Denver, Colorado, territory, as I have storage space and sale for quite a few furnaces.

Yours very truly,

C. J. McCLURE
SHEET METAL SHOP
Denver, Colorado, March 15, 1924.

say that in fan work we have one of the branches of engineering wherein theory and practice are well-nigh inseparable to correct working, and it is usually when only one or another of these qualities is applied independently that trouble arises.

This is, of course, a broad statement, but I have come across very clever engineers who have failed to appreciate, with any degree of clearness, the behavior of fans, and although they would have been capable of designing a fan plant more or less correctly, want of practical experience with fans would have doomed their efforts to failure. Unlike many other branches of engineering, the fan engineer usually has a certain range of apparatus to choose from to perform a specific duty. He must in the first place make certain calculations which in-

volve theory, and from practical experience determine the type and size of fan to employ in order to fulfil the desired conditions of work. There may be three or four different sizes of machines capable of performing the duty of air movement and pressure maintenance at varying speeds, but conditions other than those determinable by theoretical means have to be considered and such factors must assist the designer in choosing the correct fan, correct from a point of view of efficiency as well as other characteristics.

This brings us to the first of our series of observations, which emphasize the importance of being able to correctly specify the speed of a fan in order that it may perform a given duty successfully and efficiently. It may sound somewhat ambiguous to use the words successfully and efficiently independently, but in fan work such a distinction is, I venture to say, sometimes permissible.

Take, for instance, a dust exhaustion scheme where a velocity of 3,000 feet per minute is required to successfully maintain an adequate suction, if the fan is pulling at 1,000 feet per minute in excess of this figure, the scheme may still be successful, but the general efficiency must drop owing to the extra power-wastage in setting up a useful margin of air speed. It is not meant by this example that we should not err on the side of higher velocities for certain classes of work, for there are often unforeseen contingencies that warrant such a course, but the skill in correct design should aim at eliminating these contingencies and so reducing this margin to a minimum, and the smaller that margin the greater will be the efficiency of the plant.

(To Be Continued)

When you know the boss is going to tell you to do a certain thing before long, why wait?

It is not the biggest show window that attracts the most attention or sells the most goods. Small windows are often jewels of display.

Irregularly Inclined Tee Connections Are Often Necessary Where Branch Pipe Runs Diagonally Into Main.

Kothe Shows Working Drawing of Diagonal Intersection Where It Is Not Advisable to Employ More Angles.

Written Especially for AMERICAN ARTISAN by O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis, Missouri.

NOW and then the workman meets with somewhat irregularly inclined tee connections, such as where a branch pipe is to run into a main from a diagonal position. Even here various angles can be improvised to overcome the problem, and in fact, many workmen do this to save this diagonal intersection.

vertical height. The plan forms an axis of 20 degrees over the line X-Y, so that the incline branch will form an angle of 45 degrees in elevation and 20 degrees in plan.

Our next step is to develop a diagonal side elevation to embody both of these measurements and make a true position.

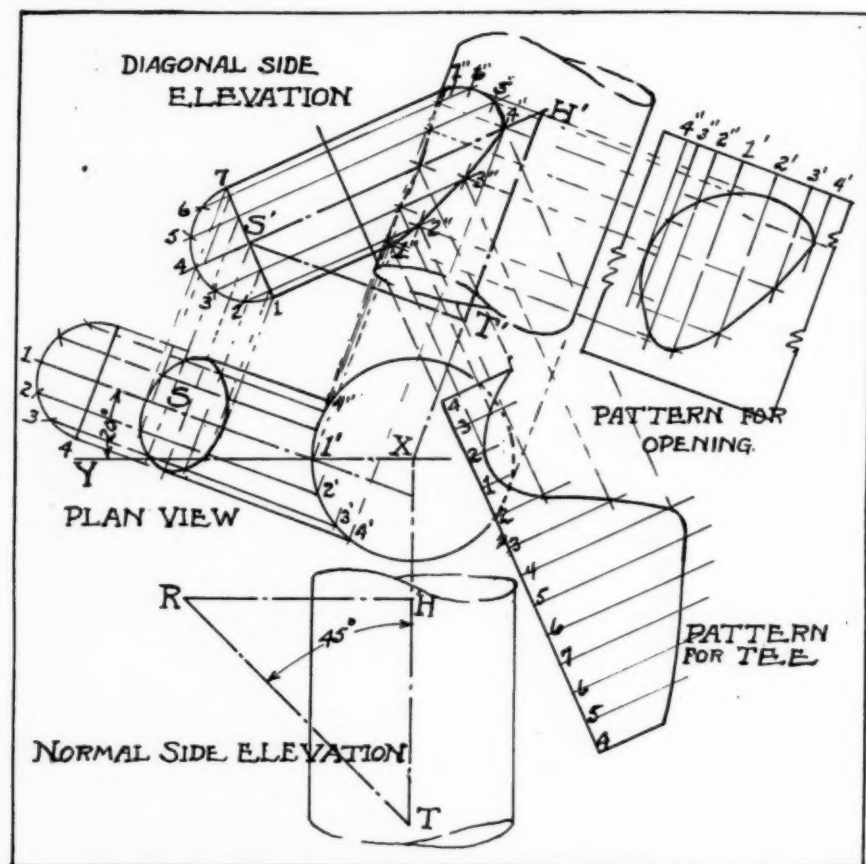
necessary; around these angles we then wrap our pipes and make the developments. So we draw the half sections in both plan and diagonal elevation and divide in the same number of equal parts. From each of these points we extend lines parallel to the center axis so that we intersect the large cylinder in points 4'-3'-2'-1'-4". From these points we erect lines parallel to X-H' and thereby intersect those lines drawn from the half section of elevation, which gives points 1"-2"-3"-4"-5", etc. This allows sketching in the miter line as shown, which is the point of penetration between the tee and the main pipe.

To lay off the tee pattern we pick the girth from either section or calculate the circumference and step it off as 4-4, which is at right angles to H'-S'. From each of these points we square out lines and from each point in miter line project lines to intersect those in stretchout of similar number. This enables tracing the miter cut of pattern as shown.

If the pattern for opening is desired, pick the girth spaces from the large circle X, such as each point individually as 4'-3', 3'-2', 2'-1', etc., and step them off on a line as 4"-4' at right angles to H'-T'. Then drop stretch out lines parallel to H'-T' and then from each point in the miter line project over lines to intersect those in stretchout of similar number. This then gives the intersection for tracing the outline for opening.

Edges for flanging or turning up must be allowed extra.

Don't count on your old customers sticking to you just because they are old customers. You have to do something to make them want to stick.



Pattern for Irregularly Inclined Tee Intersection Often Met With In Ordinary Course of Events.

But sometimes it is not advisable to employ more angles for the sake of making an easier connection, and in these cases a layout will be necessary.

The first step is to draw the axis lines for our several positions, as taking the normal side elevation where H-T is the height and H-R is the projection, making an incline of 45 degrees, as R-T with relation to the

So at right angles to 1-1' of plan we square out a line from X at right angles. Also from S of plan we draw a line parallel to it so that S'-T' will be the base line from a plan view. Then we pick the altitude of normal side elevation as H-T and set it in our diagonal position as T'-H'; then the slant line H'-S will be the true bevel between the two pipes. That is really all there is

This Tells How Iowa Sheet Metal Men Have Set a Pace for Other States to Follow.

Although Only Three Years Old and with Only Sixty Members in Association, They Will Have Paid Full Time Secretary.

IN the following is quoted the report prepared by R. E. Pauley, until March 14th Secretary of the Iowa Sheet Metal Contractors' Association and now its President, for the Board of Directors and, after receiving their approval, presented to the Association.

The report contains an excellent selling argument for the proposition of a paid, full time Secretary, but entirely aside from that it is so full of real constructive suggestions that we are glad to pass it on to our readers in other states, in order that they may get a clearer understanding of some of the reasons for the conditions with which they are confronted and also a more concise appreciation of what must be done to improve these conditions.

Give this report your careful study:

Report of R. E. Pauley to Directors.

Three years as Secretary of your organization has brought me in personal touch with many sheet metal contractors in Iowa and the Nation. As most of you know, I was not brought up in the sheet metal business. Twelve years ago last January I knew nothing whatever concerning the business and had no intention of finding out anything about it. For several years after entering the sheet metal business, I took no interest in sheet metal organization other than to become an individual member of the National Association. After attending one national convention, I was convinced that we needed organization in Iowa, so when the call came for an organization meeting at Des Moines in 1921, our firm gladly signed the call.

I am now going to make a confession. When I started in the sheet metal business, and for some years afterward in fact, I believed the sheet metal contractor or tinner, as he was commonly called, to be a

sort of inferior being. I have since had to change my opinion. I have never been thrown in contact with a finer class of fellows than the sheet metal contractors, and I am going to include in this the sheet metal worker, because the contractor or the boss is only a few years removed from the worker. The boss of tomorrow is the worker of today.

It is true that there are very few, if any, college graduates in the sheet metal business. Also, there are very few rich men in the sheet metal business, but the recent survey of the state shows that about 80 per cent of the sheet metal contractors in Iowa belong to the Commercial Clubs in their respective cities. Seventy-five per cent of them are church members and supporters of organizations for the uplift of humanity. Both of which facts prove that the sheet metal contractor believes in community service.

Men of Ambition and Ideals.

What, may we ask, is the reason for these outstanding characteristics? I believe I can tell you. They are men with ambition and a desire for something better, and are willing to work to attain their ideals. In other words, to use the phrase of the world, they are self made men. No man without ambition, determination and ability will master the sheet metal worker's trade. It is the hardest one of the building trades to learn. It is an education in itself. It requires more time, more ability, and more brains to learn it than any other trade. Therefore, a man who has mastered the sheet metal worker's trade is, first, an educated man; secondly, he is a man with ability, or he cannot apply his knowledge to his trade. The world is full of so-called educated men, men who have gone through high schools and colleges,

but have never learned to apply their education.

The sheet metal worker is a dreamer and a thinker, because in many cases he must create his own designs, then make his own drawings, and draft his own patterns. He is a manufacturer, because he takes the raw material, that is, the sheet of metal, and cuts it and forms it into the finished product. He is a contractor, because after he has manufactured the article, he must erect it. He is a retailer, because he is called upon to sell his products direct to the general public as well as to the general contractor. He must, therefore, be first a professional man, and then three kinds of a business man—a manufacturer, a contractor and a retailer. Is it then any wonder that he is not 100 per cent efficient in his business? Concerning his work as a professional man, I have very little to say, except that he does not get paid for his services in proportion to the remuneration received by most professional men.

Poor Business Men.

It is the sheet metal man as a business man about whom I wish to speak. In the first place, no one will dispute the fact that there is plenty of room for improvement in the sheet metal business in Iowa. Volumes have been said and written about the Iowa farmer in the last few months, but if the Iowa farmer is in half as bad a condition as the Iowa sheet metal contractor, then we might as well say "good-bye, Iowa."

Judging from recent reports received, I would estimate that 90 per cent of them did not make a dollar last year. And what is the reason for this condition in which the Iowa sheet metal contractor finds himself? First, I would say lack of business methods on the part of the

sheet metal contractor, and secondly, lack of business. And we can almost drop the second because it is virtually contained in the first, because proper business methods will bring business. The sheet metal contractor is not a good manufacturer (and I speak now of manufacturing as applied to the general sheet metal shop and not to the shop or factory that manufactures only one or more specific articles that are sold to the trade), because he does not use up-to-date methods in handling his work and keeping cost records. He is not a good contractor, because in most cases he is only a sub-contractor and works under the direction of someone else. He is not a good retailer, because he is a poor salesman, he does not employ modern methods of publicity, and in altogether too many cases his place of business and his own personality do not inspire the confidence of the public.

All right, now we have the charge. What is the remedy? There is only one and that is organization and cooperation. Our State Association can and will lift the sheet metal business out of the mire it is in, if you will give it a chance.

What Association Has Done.

You ask, what has the Association done for us in the three years of its existence? First, I want to remind you that those three years have been the worst three years in a business way that Iowa has ever experienced. However, the Association to date has established itself on a firm foundation. It has sold itself to the sheet metal contractor in Iowa. More interest has been taken in the Association in the last six months than during the two and one-half years previous. The Association, through its bulletin, has furnished information which as one member expressed it, one issue was worth the year's dues to him.

The Association, through the Auxiliary, has established a basis of harmony between the contractor and the manufacturer that could not have been established by any other method.

The Association has also estab-

lished a friendship and confidence between competitors.

But it has now reached a period in its existence when a big step forward must be taken.

The organization has thus far been officered by members who have a business of their own to look after. They have given of their time, experience and ability gladly, but the Association has outgrown this method and the time has now come, in the opinion of the officers and Board of Directors, and also many members, when the office of Secretary must be filled by hiring someone to devote his entire time to the work of the organization.

Naturally the first question that arises in your minds is, how can this be done? The Board presents the following plan:

How Secretaryship Is Financed.

First, no increase in dues is to be made. The dues will remain at \$10.00 yearly, payable in advance.

A per capita tax will be levied on the basis of \$3.00 per year for each man employed in the shop of each member, this to be assessed on the average number employed for the year.

To illustrate, a shop that employs an average of 10 men will be assessed \$30.00 per year in addition to the dues of \$10.00. The small shop, in which no help other than the owner is employed, will pay only \$10.00 as heretofore. In the case of a partnership, where one of the partners works in the shop or where both work more or less in the shop, one of them would be considered a shop man.

On this basis, we believe, we are justified in estimating the following income for the first year: We now have 60 members paying in \$10.00 per year, \$7.00 of which is retained by our Association and \$3.00 of which is turned over to the National Association. This leaves the State Association \$420.00. A full time Secretary should increase the membership by 40, which would increase our income by \$280.00. It has been found that the average number of employes per shop is 4. Therefore, 100 times 4 at \$3.00 each would be

\$1,200.00. We estimate that the *Iowa Sheet* can be enlarged and revenue from this source will be \$500.00, making a total of \$2,400.00 which covers the budget for salary and expense of the Secretary for the first year.

How Will Secretary Earn Salary?

What can a full time Secretary do to warrant the expenditure of this amount?

First, he will naturally have to spend some time in organization work. I would recommend dividing the state into six districts and would call an afternoon or evening meeting in each of these districts and invite all sheet metal contractors in the district to come. Let them elect a Chairman for the district who will become a member of the Board of Directors of the State Association, through whom the Secretary can get in touch with members or prospective members. Have a good discussion and exchange of ideas at these district meetings and call the meetings as often as the members desire, two or three a year if convenient.

This done, the Secretary is ready to go to work on some definite concrete work for the betterment of the sheet metal business.

Here is what various members suggest that the Association should do the coming year:

Members Suggest Activity Along Lines Named in the Following:

"Overhead and a more universal price for job work.

"Promote a better get together spirit and cooperation.

"Boycott the houses that sell to every Tom, Dick and Harry at wholesale.

"Standardization of furnace fittings and installation.

"Bring about a rule that jobbers are not to sell the lumber and hardware houses or individuals.

"Prevent the sheet metal manufacturers and jobbers from selling sheet metal building products to lumber yards and educate the sheet metal contractor to figure a fair profit on jobs and discourage price cutting.

"Better material, better prices and better cooperation among members.

"Better furnace work, also better material.

"License for all installers of furnaces in larger places.

"Stop manufacturers of sheet metal products from selling general contractors direct in place of through the sheet metal contractor.

"Eliminate light gauge gutter.

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"Study code on warm air heating.

"Overhead and know your business.

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"Would suggest that the Association work for a state license law, putting the sheet metal contractor and furnace installer in the same position as a plumber, that would force inspection of furnace jobs and put the cheap John out of business. Furnaces should be installed according to a fixed code passed on by the state.

"Teaching some of our competitors to get a profit.

"More publicity work in a general way.

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plumbing and heating or electrical contractor. We can get better prices and they will get better work.

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"Endeavor to get architects to use more sheet metal in their specifications."

Organized Publicity.

But to take up some concrete line of work that will bring returns to the members of the Association to repay them for their investment. Through a well organized plan of publicity, the sheet metal business should be sold to the architect, the contractor and the public until the volume of the sheet metal business in Iowa will double within the next five years. If we would guarantee to double your business in the next five years, every man in the room would be glad to pay into the Association twice the amount that our new plan calls for. While we can-

not guarantee it, it can be done if we all work together.

Just an example to illustrate:

What did the bill posting business amount to five years ago? What does it amount to today? I sat in the office of a member of the Bill Poster Association a few days ago as he opened up two orders that had just come in the mail and he remarked that he would have to return the contracts as he had more than he could handle. The orders amounted to over \$400.00. How many of you are turning down business that is mailed to you at standard prices? The contracts for the Bill Poster Association are all obtained by salesmen who work for the Association. The posters are printed and sent out to members, who have merely to post them for a certain period of time, for which they receive a stipulated sum. Oh, yes, the dues in their Association are somewhat high, but they all admit the Association is worth it. Their Association has "made" the bill posting business, and in less than five years.

Of course, we admit that our business is a little different from this, but nevertheless our Association, through a full time Secretary, can direct a campaign of publicity for the use of sheet metal to the architects and to the public that will produce astounding results.

Saving and Gaining Business.

Next, official organization will save for the sheet metal contractor many lines which are gradually slipping away. The sheet metal cornice is coming back and is coming back to stay. Already many cities have passed ordinances prohibiting the use of stone and terra cotta cornices, because they are not safe. Let's get behind this movement and restore the sheet metal cornice.

Corner bead, metal lath, door and window casing and trim have almost been taken over by the building supply dealer and yet they are all sheet metal products and should be sold only through the sheet metal dealer.

There is too great a tendency for furnace manufacturers to install their own furnaces. In the cities

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not guarantee it, it can be done if we all work together.

Just an example to illustrate:

What did the bill posting business amount to five years ago? What does it amount to today? I sat in the office of a member of the Bill Poster Association a few days ago as he opened up two orders that had just come in the mail and he remarked that he would have to return the contracts as he had more than he could handle. The orders amounted to over \$400.00. How many of you are turning down business that is mailed to you at standard prices? The contracts for the Bill Poster Association are all obtained by salesmen who work for the Association. The posters are printed and sent out to members, who have merely to post them for a certain period of time, for which they receive a stipulated sum. Oh, yes, the dues in their Association are somewhat high, but they all admit the Association is worth it. Their Association has "made" the bill posting business, and in less than five years.

Of course, we admit that our business is a little different from this, but nevertheless our Association, through a full time Secretary, can direct a campaign of publicity for the use of sheet metal to the architects and to the public that will produce astounding results.

Saving and Gaining Business.

Next, official organization will save for the sheet metal contractor many lines which are gradually slipping away. The sheet metal cornice is coming back and is coming back to stay. Already many cities have passed ordinances prohibiting the use of stone and terra cotta cornices, because they are not safe. Let's get behind this movement and restore the sheet metal cornice.

Corner bead, metal lath, door and window casing and trim have almost been taken over by the building supply dealer and yet they are all sheet metal products and should be sold only through the sheet metal dealer.

There is too great a tendency for furnace manufacturers to install their own furnaces. In the cities

where furnaces are manufactured, the warm air heating business has almost been lost to the sheet metal contractor on account of this deplorable custom. As a result, the people in these cities are getting the poorest installations in the state. They have no ordinances covering the installation and no inspector. An organization of sheet metal contractors in a city of this kind can put through a building code that will protect the public from this inferior work, and they can also persuade the manufacturers that their furnaces should be marketed through dealers only. This alone would increase the business of the sheet metal contractor in some cities by 50 per cent.

Now, don't get the idea for a minute that it will be a big fight to get the manufacturer to sell his goods through the sheet metal dealer. He wants to do this, but he wants to know that they will be properly displayed, that the dealer will take advantage of the thousands of dollars that he is spending in advertising and will tie up with it. He wants to know that his material, whether it be a furnace or something else, will be installed by a competent mechanic, so that there will be some repeat business, and above all, he wants it to be sold at some profit to the contractor or dealer, so that he will be able to pay for it. We cannot throw all the blame onto the manufacturer, because in many cases he has been compelled to find other outlets for his goods than through the sheet metal contractor, owing to the indifference and lack of progressiveness of the sheet metal contractor. To overcome these abuses requires an organization with a Secretary who is continually on the job. A Secretary who has other business to attend to cannot give it the time.

As to Cut Price Competition.

And now we come to the much discussed matter of prices, which is the subject that the average member wants handled first, and of course his competitor is the one who needs all the help in this matter. The matter of fair prices for

merchandise is one of the most delicate to handle. No Association has the right to fix prices. However, it does have the right to educate its members in the matter of costs and in the matter of keeping cost records, and we will give any member credit for having brains enough to ask at least a little profit on his goods if he knows what the cost of the merchandise and labor is, plus the old item of overhead or burden.

Commodities in other lines are not sold over the state at the wide variation in price that was shown in sheet metal by our recent questionnaire. There is no reason for this wide variation in prices of sheet metal goods if we all know our business. Answers to the questionnaire just sent out show that a large percentage of men in the sheet metal business in Iowa do not even know the amount of their sales in 1923. More of them do not know how much they spent for merchandise and labor. These last two are fixed items of cost, and if they do not know them, they certainly do not know what it is costing them to do business.

If by the aid of a full time Secretary standard methods of cost keeping can be introduced into the sheet metal shops of Iowa, the selling prices of sheet metal goods and service in Iowa will take care of itself.

A full time Secretary can work out a system of bookkeeping and cost accounting with a full set of forms which can be sold to the members at a little above cost. A saving can be made to members on fire insurance which alone would pay their dues in most cases. Different classes of work can be standardized and architects educated to use standard specifications which will cut out the cheap contractor and insure to the public a grade of sheet metal work which will make them want more rather than less.

Finally, don't get the idea that any Secretary can accomplish all these things himself. If we are to hire him and then say, "Here is what we want done. Go to it and

we will expect you to have this all done and ready to make a fine report at the next convention," we had better save our money. The Secretary need not be a sheet metal man. He will, therefore, need committees to advise him on different matters, committees who will work out certain definite plans, and then it will be up to the Secretary to execute them.

The old story of the stage driver who charged a first, second and third class fare fits the occasion so well that you will pardon me for repeating it.

Cicero-Chicago Corrugating Company Moves Kitchen Equipment Department Into New Section.

The Cicero-Chicago Corrugating Company, Sixteenth Street and Fifty-second Avenue, Chicago, announces the removal of one of its departments from 4650 West Harrison Street to the newly erected section of the factory at Sixteenth Street and Fifty-second Avenue.

This section, which is one of three into which the business is divided, is used in the manufacture of white enameled kitchen equipment.

The remaining two departments are used by the company in manufacturing sheet metal products and filing cabinets.

The company now occupies approximately 45,000 square feet of space in its main building, starting in business in 1919, and it is looking forward to a good business for 1924, according to W. F. Waller, Vice-President.

AMERICAN ARTISAN Finds Tools for J. W. Strain.

TO AMERICAN ARTISAN:

Many thanks for services rendered. I have found what I wanted in the way of Tinner's tools in Iowa.

I am enclosing P. O. money order of \$3.00 for which kindly keep AMERICAN ARTISAN coming for another two years. I cannot well do without the valuable information contained therein.

J. W. STRAIN.

Sedalia, Missouri.

On to Peoria, You Sheet Metal Contractors of Illinois, for Annual State Convention!

April Ninth and Tenth Are the Dates—Program Has Plenty of Good Subjects and Enough Entertainment to Make It Just Right.

PEORIA, April 9th and 10th! That is the place and dates for the eleventh annual convention of the Sheet Metal Contractors' Association of Illinois. The headquarters will be at Hotel Jefferson.

The Peoria Sheet Metal Contractors are a live bunch. Some are tall, others are small; some are spare, others are square, but whatever else they are, they certainly have shown the world how to keep an organization alive and useful, and during the state convention visiting contractors will be able to learn what they have accomplished and how it was done.

Those who arranged the program used excellent judgment, for it is so well balanced that everybody in the sheet metal contracting business in Illinois will have good reason to attend the convention.

The program follows:

Wednesday, April 9, 1924.

8:30 a. m.—Registration and Distribution of Badges at the Jefferson Hotel Gold Room.

9:30 a. m.—Meeting of Board of Directors.

10:00 a. m.—Convention called to order by C. N. Louis, Vice-President of the Peoria Local.

Address of Welcome—Honorable E. N. Woodruff, Mayor of Peoria.

Response and Address—A. J. Hermsdorfer, Quincy, President of the Sheet Metal Contractors' Association of Illinois.

Committee Appointments.

Proposals for Membership.

Question Box.

2:00 p. m.—Roll Call. Reading of the Minutes of the previous meeting.

2:30 p. m.—Address by George A. Sloan, Secretary, Copper and Brass Research Association, New York. Subject: "What the Copper and Brass Research Association Is Doing for the Sheet Metal Contractors."

Discussion.

Question Box.

3:30 p. m.—Automobile ride.

6:30 p. m.—Banquet and entertainment. Hosts, Traveling Salesmen's Auxiliary.

Thursday, April 10, 1924.

9:00 a. m.—Address by Frank E. Smith, President, Clark-Smith

Hardware Company, Peoria. Subject: "Some Changes."

10:00 a. m.—Address by D. M. Strickland, American Rolling Mill Company, Middletown, Ohio. Subject: "Sheet Metal Problems."

11:00 a. m.—Discussion.

Question Box.

2:00 p. m.—Report of Committees.

New and Unfinished Business.

Election of Officers.

Installation of Officers.

Selection of next Convention city.

Auditorium Hotel, Chicago, Scene of Lively United Sheet Metal Contractors' Banquet and Dance.

Sumptuous Chicken Dinner Served—Maxim's 7-Piece Orchestra Furnishes Music for Dancing.

MEMBERS and friends of the United Sheet Metal Contractors of Chicago were royally banqueted and entertained with a dinner, music, speaking and dancing at the Auditorium Hotel, Saturday evening, March 15th. The chicken dinner, from iced clams on the half shell to ice cream, wafers and demitasse, was excellently prepared and served.

The guests of honor were Mrs. Winnifred Mason Huck, Ex-Congressman at Large from Illinois and daughter of the late Congressman at Large William E. Mason, and Assistant Corporation Counsel Leonard J. Grossman, accompanied by Mrs. Grossman.

Mrs. Huck was the first speaker to be called upon by Toastmaster Cook, than whom no better could have been selected by the Committee on Arrangements for the job as toastmaster.

Mrs. Huck spoke briefly upon her views and convictions with regard to the abolition of war and its bearing upon the happiness and tranquility of the nation. She also expressed herself as favoring the deep water way project, as in her mind Chicago is the logical shipping center for the great central west.

Assistant Corporation Counsel Grossman, who spoke later in the evening on the benefits to be derived from organization, complimented Mrs. Huck very highly, in spite of the fact that his party affiliations are opposed to those with which she has sided.

At this juncture in the program the singing was indulged in by the diners to the accompaniment of the piano and mandolin. When the singing had ceased, there was a slight commotion at lower end of the speakers' table where George B. Carr found he had eaten so much that he could not get up. A waiter hovering expectantly in the offing came to Mr. Carr's assistance in time to avoid a catastrophe.

Mr. Keeler, the well known apprentice trainer, spoke next and both Mr. Gross and Mr. Feld bore him out in saying that the apprentices they had engaged from the school with which Mr. Keeler is connected were on the job and making good.

After the tables had been removed, Maxim's 7-piece orchestra struck up some lively music and the dance was on.

At intervals during the dancing Toastmaster Cook called upon other members for short talks. Among

these were Miss Etta Cohn, AMERICAN ARTISAN; E. C. Cummings, Thatcher Furnace Company; Joe Goldberg, Excelsior Steel Furnace Company; and last but not least, Chairman Martin Gold.

Four enormous baskets of Russell roses decorated the speakers' table. Later in the evening, however, one of these was presented to Miss Etta Cohn; another went to Mrs. Leonard J. Grossman; the third and fourth baskets going respectively to Mrs. Combs, wife of Secretary Combs, and Mrs. Bloomer, wife of Vice-Chairman Bloomer.

At the end of the floral distribu-

tion Toastmaster Cook announced that a basket was being delivered to the home of Mrs. Gold.

During the evening hundreds of balloons were inflated, and these afforded a great deal of amusement to the several children present, as well as to the grown-ups. These balloons were presented with the compliments of the Bloomer Heating and Ventilating Company and were brought by Mr. Gross.

From the distribution of the flowers to the close of the evening, dancing continued uninterruptedly, and it was a happy but tired group which left the hotel at midnight.

Figures Do Not Lie, but You Must Draw Them Correctly If You Expect True Results.

Harry Frye Believes in Submitting Proofs of His Assertions When Dealing in Geometrical Figures.

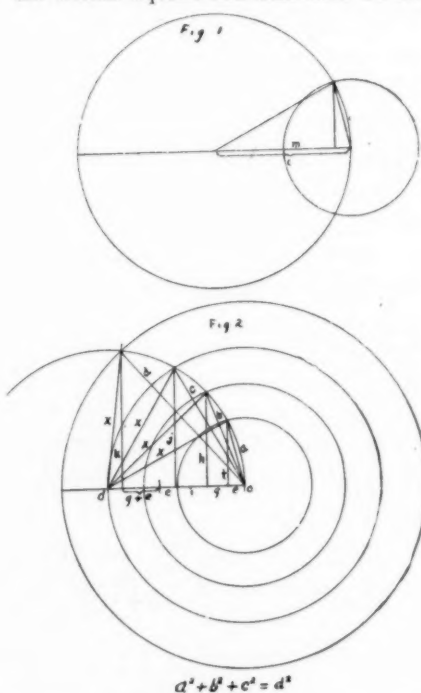
HERE is a geometrical proof of the problem of graphically adding the areas of circles. In figure 2, c is the radius of the base circle to be added to; a and b are the radii of the circles to be added to the base circle. With point o' as a center and using radius x (equal to radius c) strike a circle through center o intersecting the circles to be added. Draw the common chords of the intersecting circles, and call the common chord of the base circle and the intersecting circle the base chord.

For each circle added, a distance must be stepped or measured from the base chord equal to the distance from the center of the circle to be added, to the common chord of that circle and the intersecting circle.

In the drawing figure 2, the distance would be " e " for the smallest circle and $e + g$ for the next circle, making a combined distance of $e + e + g$ measured or stepped off from the base chord for the addition of the two circles to the base circle.

At the end of this distance erect a perpendicular line k which will be the common chord of the intersecting circle and of another circle which will be combined area of the circles with radii a , b , and c . The

distance stepped off from the base chord being limited to the end of the diameter of the intersecting circle which equals the diameter of the



Illustrating Graphically How the Areas of Circles Are Added.

base circle. Any number of circles may be added by using the last circle drawn as a new base circle, ad finitum.

Proof. Theorem No. 1. The square of the side opposite of an

acute angle of a triangle is equal to the sum of the squares of the other two sides minus twice the product of one of these sides and the projection of the other upon it.

From this theorem I derive the following, Theorem No. 2:

In any triangle having two sides of the same length the square of the third side divided by the sum of the other two sides equals the projection of the third side upon either of the other two sides.

Proof: In figure 1, $a^2 = x^2 + c^2 - 2cm$. Substituting c for x in the equation then $a^2 \div 2c = c - m$, then in figure 2, $c - m = e$.

x = the radius of the intersecting circle.

c = the radius of the base circle and $x = c$.

a , b , and c equal the radii of the circles to be combined.

Then according to Theorem No. 2, $a^2 = 2x(e)$

$$b^2 = 2x(g + e)$$

$$c^2 = 2x(g + e + i)$$

$$d^2 = 2x(g + e + g + e + e + i)$$

Then,

$$a^2 = 2xe$$

$$b^2 = 2xg + 2xe$$

$$c^2 = 2xg + 2xe + 2xi$$

$$d^2 = 2xg + 2xe + 2xg + 2xe + 2xe + 2xi$$

$$\text{Then, } 2xe + 2xg + 2xe + 2xg + 2xe + 2xi = 2xg + 2xe + 2xg + 2xe + 2xe + 2xi.$$

HARRY FRYE,

Tullahoma, Tenn.

Banquet of Illinois Sheet Metal Men Will Be Held April 9th, Jefferson Hotel, Peoria.

Oliver Ingledew has two announcements to make for the Travelers' Auxiliary of the Illinois Sheet Metal Contractors' Association:

First—the annual banquet to the contractors will be given in the Gold Room of the Jefferson Hotel, Peoria, on Wednesday evening, April ninth.

Second—a reunion of the Blue Gas Furnace Gang will be held the following forenoon, April tenth, also at the Jefferson. Jack Goodwin has issued orders that all members be on hand.

Former Tin Plate Worker Proves That Day of Fairy Tale Happenings Is Still Here.

Tom Griffiths Rises from Apprentice Boy in Welsh Tin Plate Mill to Treasurer of Royal Household.

ONE of Premier Ramsay MacDonald's recent appointments has aroused much interest in the tin plate industry in this country, as well as in Great Britain. Newspaper reports from London announce that Tom Griffiths, member of Parliament for Pontypool, has been appointed to the post of Treasurer of the Royal Household.

Thomas Williams, General Manager of the Pontypool Tin Plate Works of Partridge, Jones & John Paton, Limited (formerly the Pontypool Works, Limited), in a letter to Hollinshead N. Taylor, President of N. & G. Taylor Company, tin plate manufacturers, Philadelphia, states that Thomas Griffiths started as a boy at the Melyn Works, Neath, Wales, at a wage of four pence a day; that he rose to the position of roller and afterward came out as an organizer for the British Steel Smelters' Union. From newspaper accounts we learn that he was a divisional officer of the Iron and Steel Trades' Confederation before entering Parliament in 1918.

He has been a member of the Neath Town Council and associated with the local and national Coöperative and Friendly Societies' movements. He has investigated labor conditions in countries other than Great Britain. He has represented Pontypool since 1918, and has been a whip of the Labor party since his entry into the House of Commons. He is a deacon and Sunday school teacher in the Calvinistic Methodist Church at Neath.

In his new appointment he succeeds the Right Honorable Colonel George Gibbs, Privy Councilor and son-in-law of Viscount Long.

Under the British tables of precedence, plain Tom Griffiths in his new post would outrank at public functions all baronets, sons of viscounts and barons, younger sons of earls, many Knights of the Garter,

most knights of other orders, the Lord Chief Justice and the Chancellor of the Exchequer.

Apparently, our Mother Country is not far behind America in the opportunities for advancement to high positions it affords to those of humble origin.

Kant-Break Ladders, Inc., St. Louis, Add Hook for Self Adjusting Ladder.

The success and growth of the Kant-Break Ladders, Inc., St. Louis, Missouri, manufacturers of safety devices, is due chiefly to their persistent efforts in adhering to the fundamental principle, quality.

Realizing the import of "Quality" in the manufacture of their products, and their determination to build "up to a standard and not down to a price," they have attained

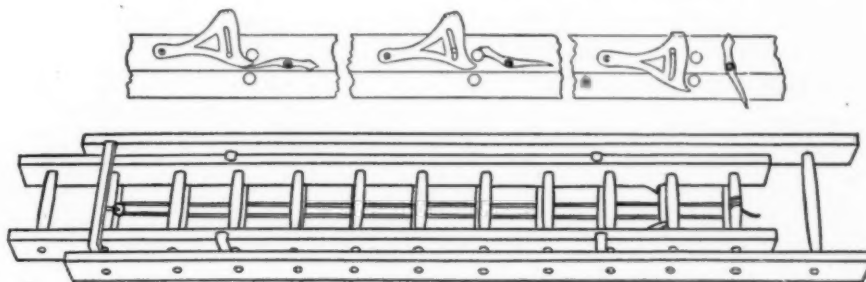
by the Kant-Break, and surely deserves the due consideration of every mechanic in the country, says the company. It is unbreakable, and it cannot get out of order or get stuck, regardless of weight or weather.

As you will note by the cut, it is so constructed that no amount of pressure can deflect it. It is so balanced that by raising or lowering the upper section the lock falls to its position as shown, regardless in what position the ladder stands.

Cleveland Office and Warehouse of Merchant & Evans Company, Moved to 3125 Perkins Avenue.

The offices and warehouse of the Cleveland Branch of Merchant & Evans Company, distributors of sheet metals, tools and supplies have been moved from 315 Champlain Avenue to 3125 Perkins Avenue, where far better receiving, storing and shipping facilities have been provided.

S. J. Carroll is Manager of the Cleveland Branch.



Kant-Break Pendulum Self-Adjusting Hook for Pull-Up Extension Ladder.

the highest possible maximum of safety in the articles they manufacture.

Kant-Break products have withstood every physical test of the trade, and are in greater demand every day. We understand they have been placed in practically every state in the union, and this alone proves their merits.

Something new. The Kant-Break Ladders, Inc., have added another feature to their latest improved ladder. It is a pendulum self-adjusting hook for the extension ladder, known as the pull-up style. This device has been designed and patented

Paying Wages by Check Saves Pay Roll of \$4,000.

The fact that wages were paid by check instead of in cash at the Grand Sheet Metal Works, 930 West 19th Street, Chicago, saved the Company from losing a \$4,000 payroll Monday, March 16th. Three bandits, evidently informed as to the customary time of payment, held up the office and forced a dozen employes into a rear room. They got \$23.50.

The merchant who runs his business by guess generally guesses wrong.

Landis Committee Brings About Closer Relation Between Employers and Employees.

Continuous Work at Fair Pay Results in Greatest Building Record in Chicago's History.

THE spirit of good fellowship is being strongly injected into the relations between Landis Award contractors and Landis workmen, and as a result there is a better general understanding between them. Both sides are benefitting from the social relations and each side realizes that the other has its problems and is eager to aid in effecting satisfactory solution of them.

The recent joint meeting between the Landis architects and members of the Citizens' Committee, held at the Union League Club, was one of the most enthusiastic gatherings of the kind held since the Citizens' Committee launched its campaign to clean up the building industry of Chicago and to keep it clean. All the leading architects of the city were present, as were nearly all members of the general committee of the Citizens' Committee. T. E. Donnelly, Chairman of the committee, told of the splendid record made last year and of the tremendous volume of building carried on in Chicago without labor disturbances. He also pointed out that those contractors who, a little more than two years ago, urged the formation of the committee to right the many wrongs resulting from monopolistic domination of the industry by crooked labor leaders, and who since have deserted the ship, continue to benefit from the committee's operations without sharing in the support in the movement.

Mr. Donnelley, James A. Patten, Sumner Sollitt, Joseph R. Noel, Alfred Alschuler, George Mehring, Joseph H. Defrees and others urged the public to give their building contracts to Landis contractors and to lend their hearty approval and support in every way possible to the movement which has meant so much for Chicago.

In 1923 the volume of Chicago building was greater than that of

the entire west, excepting the Pacific coast states—California, Washington and Oregon—and Chicago's percentage of increase was greater than the combined percentage in crease of New York, Philadelphia, Baltimore and Washington.

Hear the Big Noise! Listen to Fred Gross Call for Illinois Sheet Metal Convention.

Fred C. Gross, Secretary of the Illinois Sheet Metal Contractors' Association, wants every sheet metal contractor in the state to attend the annual convention of the Association which is to be held at Hotel Jefferson, Peoria, April 9 and 10.



Secretary Gross Drumming Up the Illinois Sheet Metal Contractors for Annual Convention.

The program which has been prepared has just the right proportion of real business information, inspiration and entertainment, so that the time you spend there will be both profitably and pleasantly spent.

Reinke & Reinke, Milwaukee, Rearranging Shop and Ask for Supply House Catalogs.

Reinke & Reinke, 514 Market Street, Milwaukee, Wisconsin, are making various rearrangements of their sheet metal shop. They have already installed several new machines, and sheet metal supply

houses are asked to submit their catalogs.

Metal Branch Will Meet in Philadelphia, May 9 and 10.

We are in receipt of a letter from W. H. Donlevy, Chairman of the Metal Branch of the National Hardware Association, to the effect that the 13th annual meeting of that organization will be held May 9 and 10 in the Bellevue-Stratford Hotel, Philadelphia.

Notes and Queries

Furnace Brushes.

From Yates Stove and Furnace Repair Works, Corner Broadway and Water Streets, Piqua, Ohio.

Will you kindly inform us who makes a furnace cleaning brush?

Ans.—The Manufacturers' Brush Company, 1950 West 114th Street, Cleveland, Ohio.

Radiator Repair Equipment.

From Farrow and Muza, Corner Light and Pearl Streets, Oshkosh, Wisconsin.

Please inform us where we can get complete equipment for repairing automobile radiators, also where we can buy radiator cores.

Ans.—The F. L. Curfman Manufacturing Company, Maryville, Missouri, can furnish you with a complete outfit. 2. G. and O. Manufacturing Company, New Haven, Connecticut, make radiator cores.

Address of Harrison Radiator Corporation.

From Farrow and Muza, Corner Light and Pearl Streets, Oshkosh, Wisconsin.

Can you tell us where the Harrison Radiator Corporation is located?

Ans.—Lockport, New York.

Cast Iron Tanks.

From Hazelton Hardware Company, Hazelton, North Dakota.

Who makes cast iron tanks, 32 inches long, 22 inches wide, and 34 inches deep?

Ans.—Central Sheet Metal Works, 158-160 North Desplaines Street, and Charles F. Elmes Engineering Works, 230 North Morgan Street; both of Chicago, Illinois.

Florists, Milliners and Haberdashers No Longer Dominate Easter Sales to the Exclusion of Hardware Merchant.

Lilly Hardware Company, 114-116 East Washington Street, Indianapolis, Goes 'Em One Better by Combining Flowers and Silverware in Easter Window Display.

EASTER Sunday, which occurs on April 20th this year, has generally been considered as a day for flowers, new hats, spring suits, but with little that would stir the hardware man to much action in the way of extra sales. These men have considered this day as belonging chiefly to the florists, and clothing merchants, particularly the milliners for Milady and the haberdashers for her "worsen" half.

hardly necessary, as the story is told by the picture.

The background is made up of Easter lilies in the center and ferns at either side. Gifts of utility hardware shown is the slogan of the National Retail Hardware Dealers' Association and fits in most appropriately at this time, with the idea of gifts for Easter, gifts for engagements and weddings, the spirit of the time.

the entire setting is very well worked and displayed.

The Bates Manufacturing Company, New York City, Takes Over the Samson Hand Punch.

On March 1st, 1924, the Bates Manufacturing Company, New York City, for thirty-five years makers of the well-known Bates numbering machines, purchased the



The Advent of Easter Sunday No Longer Exclusively Reserved for Florists, Milliners and Haberdashers. Hardware Merchant Also Finds Abundant Opportunity to Increase Easter Sales of China and Silverware.

However, we are happy to say in street vernacular: "Them days is gone forever."

In the accompanying illustration we can show at least one instance of where the hardware merchant has learned that a combination of Easter lilies and Boston ferns make an excellent background for silver and china dinner sets with which to decorate the Easter dinner table.

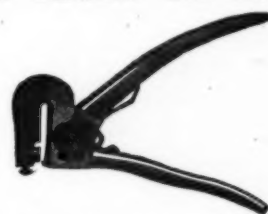
The display is that of the Lilly Hardware Company, 114-116 East Washington Street, Indianapolis, Indiana.

A description of this window is

The window is a typical Easter window, not only because of the flowers, but the fact that at this time of year the minds of buyers and prospective customers generally center on gifts. The tea set in the center is shown banked by the flowers. A large rich blue plush runs down the center of platform to the front of the window. This is also true of the platform on which the two cases of silverware are placed.

On the floor, which is covered with white flannel, you will find everything for the home in the way of silverware. All will agree that

Machine Appliance Corporation of Brooklyn, New York, who have been the manufacturers of Ajax Eyelet Fasteners and the well-



The Sampson Punch.

known line of Samson Hand and Bench Punches. The fastener will be called the Bates Ajax Eyelet Fasteners, according to the circular

sent out by the Bates Manufacturing Company.

These products will hereafter be made in the plant of the Bates Manufacturing Company at Orange, New Jersey.

Dealers and jobbers are requested to direct their orders and corre-

spondence to the Bates Manufacturing Company, whose New York office is 50 Church Street.

The prices and discounts under the new management will remain the same as heretofore.

Write for circulars and full particulars.

Hardware Manufacturers and Southern Hardware Jobbers Will Have Fine Convention Program.

Week of April Eighth Will Be the Big Week in New Orleans for Big Men in Hardware.

WHOEVER arranged the program for the Joint Convention of the Southern Hardware Jobbers' and the American Hardware Manufacturers' Associations did a good job.

As will be noted from the following, there is plenty of variety, and the delegate who attends all the sessions will have his time fairly well filled up. And between the business sessions there is also enough pleasure mixed in to make the convention both profitable and enjoyable.

Business Program.

Tuesday, April 8.

10:30 a. m.—Joint Opening Meeting of Members and Invited Guests of the Southern Hardware Jobbers' Association and the American Hardware Manufacturers' Association in the Convention Hall (12th floor).

Presiding Officer, President G. A. Trumbull.

Invocation.

"America."

Address by Mr. G. A. Trumbull, President of the Southern Hardware Jobbers' Association.

Address by Mr. Isaac Black, President of the American Hardware Manufacturers' Association.

Address of Welcome to City of New Orleans.

Address by Colonel P. O. Knight "There is one Mistake We Must Not Make."

Address by Representative of the Texas Hardware Jobbers' Association.

Address by Representative of the

Southern Supply & Machinery Dealers' Association.

Address by Representative of the National Hardware Association.

Address by Representative of the National Retail Hardware Association.

2:30 p. m.—Separate Executive Session of the Members of the Southern Hardware Jobbers' Association in the Green Room (12th floor).

Separate Executive Session of the Members of the American Hardware Manufacturers' Association in the Du Barry Room (Mezzanine floor).

Serial Convention Sessions on Wednesday morning, Wednesday afternoon and Thursday morning in the Convention Hall.

There will be Joint Meetings of the delegates representing the members of the Southern Hardware Jobbers' Association and the American Hardware Manufacturers' Association. All delegates are cordially invited to take part in the discussions.

Wednesday, April 9.

10:00 a. m.—Agricultural Implements Group. Joint Meeting, W. A. Graham, Chairman.

Topics: The Value and Progress of Simplification.

Is Decimal Pricing and Packing Economical?

What Conditions, if any, Justify Cancellations?

11:15 a. m.—Tool Group. Joint Meeting, J. E. Stone, Chairman.

Topics: Is the Guarantee of

Goods a Sound Business Policy?

Sales Promotion Through Manufacturers' Missionaries.

2:30 p. m.—Builders' Hardware Group. Joint Meeting, Murray Sargent, Chairman.

Topics: What Will Be the General Business Conditions for the next Six Months?

Should not all Hardware Jobbers be Technically Equipped to Bid on Blue-Print Jobs?

Does any Trade Condition Justify a Non-Observance of Cash Discount Terms?

3:45 p. m.—Mill Supplies Group. Joint Meeting, N. A. Gladding, Chairman.

Topics: Are Price Guarantees in the Mill Supply Industry Desirable from an Economic Standpoint?

Are Resale Prices Desirable from the Viewpoint of the Manufacturer, Dealer and Consumer?

In What, if any Circumstances Should the Manufacturer Pay Freight?

Thursday, April 10.

10:00 a. m.—Housefurnishings Group. Joint Meeting, C. W. Asbury, Chairman.

Topics: What is the effect of Direct Shipments on the Manufacturer and on the Distribution System?

Are Jobber and Dealer Stocks too Low to Render Proper Service to the Consumer?

11:15 a. m.—Sporting Goods Group. Joint Meeting, E. R. Galvin, Chairman.

Topics: How May the Manufacturer Develop an Increased Market for Sporting Goods?

How Can the Manufacturer Help the Jobber in Reducing the Carry-over of Seasonable Goods?

2:30 p. m.—Separate Executive Session of the Members of the Southern Hardware Jobbers' Association in the Green Room (12th floor).

Separate Executive Session of the Members of the American Hardware Manufacturers' Association in the Du Barry Room (Mezzanine floor).

Friday, April 11.

10:00 a. m.—Executive Session of the Members of the Southern

Hardware Jobbers' Association in the Green Room.

Convention Sessions.

Convention Sessions will start promptly at the time scheduled. This rule will be strictly observed and Delegates will conserve their own time and contribute toward making these Sessions a success by being in their seats ahead of the scheduled hour.

Entertainment Program.

Tuesday Evening—Informal Reception at Roosevelt Hotel.

Wednesday Afternoon—Card party for the ladies at the Country Club.

Wednesday Evening—Dance at the Country Club.

Thursday Evening—Dance and Reception at the Patio Royal in the old French Quarter.

Preparedness Is the First Essential in Successfully Handling Sporting Goods

Youth Is Impetuous and Will Not Wait a Minute—Prepare Your Stock as Soon as Possible.

THE article appearing herein after should be read by everyone who wishes to take full advantage of the coming sporting goods selling season.

In his planning for the year 1924 the wide-awake hardware dealer will not overlook the possibilities of developing new sporting goods trade.

Much preparatory work for the coming year can be done right now. Moreover, this work should be done right now, when time is plentiful, rather than left until later in the season, when the hardware dealer will find himself a great deal busier.

It will pay to take time to study the results of last year's sporting goods business, and to determine just how the handling of the sporting goods department can be improved. Even in the most efficient and successful department there is always room for improvement.

Where results are really not up to the mark, there is always a tendency to blame extraneous influences—general trade conditions, hard times, unemployment, the war, or any one of a score of influences. The only agency or individual never to blame is the merchant himself.

Now, while a great many conditions may contribute to a relatively poor showing in the sporting goods department, and while the merchant is assuredly not to blame for all these conditions, it is a fatal and disastrous habit to make excuses. You may not always be able to do

as big a business as you ought to do, but if you put forth intelligent and aggressive efforts they are pretty sure, under the worst conditions, to pay for themselves. Never let yourself get the idea that "It's no use trying."

So it will pay you, particularly if you feel that extraneous conditions are to blame for a poor showing, to find a little fault with your own methods, no matter how good they are. Fault-finding is a necessary first step in the direction of improvement. And improvement is the next step in the direction of the big results you ought to get.

It will pay you to follow up your general stock-taking by giving a little extra attention to your sporting goods stock. Get a line on what goods you have, and determine just what additional stock you will need so as to be ready for business when spring arrives.

For remember this—sportsmen are either young men, or old men who reveal to you their most juvenile and enthusiastic side. You've got to have what such men want just when they want it, for the normal, impetuous sportsman is impatient. If he can't get what he wants from you, he will make a bee line to some competing store, rather than wait even a few days until you get the goods in.

Preparedness is a first essential in handling sporting goods. You must

have the stock to meet the demand. This does not mean that you should overbuy heavily, or run the risk of overbuying; but you must aim to acquire a close knowledge of the possible demands of your community. Knowing what your customers are likely to want is the one means of keeping your investment in the sporting goods department within reasonable limits.

Having looked over your stock, give some attention also to your methods of window and interior display. To sell sporting goods, you must show them. Display is vital to success in this department. A really good window display will sell a lot of sporting goods. In this connection, any sporting goods display that suggests action has almost irresistible appeal.

Form the habit of noting down ideas for display as they occur to you. You may sit down some day, determined to think out the plan of an A-1 window trim, and cudgel your brain for an hour without evolving anything worth while; but next day when you are busy, the finest kind of idea is apt to occur to you.

Don't trust to memory to retain that idea for future use. Jot it down in your notebook. Next time you sit down determined to work up a window trim, instead of cudgeling your brain without result, all you will have to do is to open your notebook and refer to the ideas you have accumulated there. With these to start you, the planning of a window trim is easy.

It is a good idea to keep a drawer or pigeon hole or a folder in your vertical filing cabinet for display ideas, selling stunts, advertising slogans, catch lines, and the like. If an idea occurs to you note it down and stow it away. If you run across anything in your trade paper that would be helpful, mark it or clip it. Keep a handy file of some sort for useful material, and when the need arises, refer to it. This practice will save an immense amount of work.

Sporting goods are essentially timely. The various seasons in this

department move along swiftly; the hardware dealer who aims to capture the business must be constantly on the jump. A campaign planned in advance will facilitate the proper handling of the business when the season is on.

Here is another idea. Take each line of sporting goods separately—fishing tackle, ice skates, baseball, football supplies, golf and tennis supplies, etc. Run over in your mind your past experiences in selling these lines, and try to think of points where you could have improved your methods. Put your inventive brain to work and devise at least one real, live, attractive selling scheme to boost your sales in each of these lines.

Right now, where the ice is thick and smooth enough, ice skates are timely. Ice skates furthermore lend themselves to attractive display. Quite elaborate displays can often be devised. On the other hand, a comparatively simple idea may add 100 per cent to the effectiveness of an ordinary display. A bit of mirror on the floor of the window, frosted over, will represent ice. Cotton wadding sprinkled with "artificial snow" makes good enough snow. A canopy of blue tissue or cloth with yellow stars and a crescent moon on top makes a nifty bit of right sky. Put in the skates, the hockey sticks, a dummy figure if you've got one—there is your display, hitting the wayfarer squarely in the eye.

The mirror, cotton and artificial snow will add 100 per cent to any ice skate display.

Another skate display often found very effective involves the elements of contrast. Take the very finest and newest skate you have in stock. Then get the oldest pair of skates in town or elsewhere; or, failing something of this ancient vintage, get a broken pair of ordinary skates. Show the two lines side by side. The contrast will make the skate you want to sell singularly attractive.

If you have a large amount of window space, with an extra large window, you can widen your display

to cover all winter sports—not merely skates and hockey equipment, but sleds of various kinds, toboggans, snowshoes, etc. Even where snowshoes and toboggans are not in regular use, they will prove interesting as curiosities.

So far as your general campaign and your plans for the year's sporting goods business are concerned, never forget that the bulk of the sporting goods business goes to the dealers or salesmen who are themselves "in the game." Personal acquaintance with individual players, and particularly with the local leaders in each sport, is a powerful factor in securing trade. Add to this personal acquaintance an intelligent knowledge of the various sports, and you are in a fair way to getting a firm grip on your community's trade. If you play any game well, or even indifferently, so much the better; if you play them all, it is better still.

Coming Conventions

Spring Convention of American Hardware Manufacturers' Association, Roosevelt Hotel, New Orleans, Louisiana, April 8, 9, 10 and 11, 1924. Frederick D. Mitchell, Secretary-Treasurer, 1819 Broadway, New York City.

Annual Convention of Southern Hardware Jobbers' Association, April 8, 9, 10 and 11, 1924, at Roosevelt Hotel, New Orleans, Louisiana. John Donnan, Secretary-Treasurer, Room 821, American National Bank Building, Richmond, Virginia.

Old Guard Southern Hardware Salesmen's Association, April 9. Hotel Roosevelt, New Orleans. R. P. Boyd, Secretary, R. F. D. 4, Nashville, Tennessee.

Illinois Sheet Metal Contractors' Association, Jefferson Hotel, Peoria, Illinois, April 9 and 10, 1924. Fred C. Gross, Secretary, 219 South Fifth Street, Quincy, Illinois.

National Warm Air Heating and Ventilating Association Convention, Hotel Winton, Cleveland, Ohio, April 16 and 17, 1924. Allen W. Williams, 52 West Gay Street, Columbus, Ohio, Secretary.

Missouri Sheet Metal Contractors' Association, Kansas City, Missouri, April 22 and 23, 1924. John B. Fehlig, Secretary, 528 Delaware Street, Kansas City, Missouri.

Panhandle Hardware and Implement Association, Amarillo Hotel, Amarillo, Texas, May 12, 13 and 14, 1924. C. L. Thompson, Secretary and Treasurer, Canyon, Texas.

National Association of Stove Manufacturers, Hotel Astor, New York City, May 14 and 15, 1924. Allen W. Williams, Temporary Secretary, 52 West Gay Street, Columbus, Ohio.

Southeastern Retail Hardware and Implement Association, composed of Alabama, Florida, Georgia and Tennessee. Convention and Exhibition, Atlanta, Georgia, May 27, 28, 29, 1924. Walter Harlan, Secretary, 701 Grand Theater Building, Atlanta.

National Retail Hardware Association Congress, San Francisco, California, June 16, 17, 18 and 19, 1924. Herbert P. Sheets, Secretary, Indianapolis, Indiana.

Hardware Association of the Carolinas Convention, Wrightsville Beach, North Carolina, June 17, 18, 19, 1924. T. W. Dixon, Secretary-Treasurer, 717-718 Commercial Bank Building, Charlotte, North Carolina.

Convention National Association of Sheet Metal Contractors of the United States, Raleigh Hotel, 12th and Pennsylvania Avenue, N. W., Washington, D. C., June 17, 18, 19 and 20. Edwin L. Seabrook, Secretary, 608 Chestnut Street, Philadelphia.

Ohio Sheet Metal Contractors' Association, Southern Hotel, Columbus, Ohio, July 22 to 24, 1924. George F. Mooney, Secretary, 213 First National Bank Building, Columbus, Ohio.

Pennsylvania & Atlantic Seaboard Hardware Association Convention and Exhibition, February 16 to 20, 1925, at Philadelphia Commercial Museum. Sharon E. Jones, Secretary.

Retail Hardware Doings

California.

Robert Bonner of the Wisnom-Bonner Hardware Company, with stores in Burlingame and San Mateo, has retired from the business in San Mateo and is now sole owner of the Burlingame store, which will be operated under the name of the Bonner Hardware Company.

The La Mesa Hardware Company of La Mesa has changed its management. The new owners are: Reuben M. Levy, D. Frank Park, J. A. Parks, B. Q. R. Canon, all of La Mesa, and J. E. O'Keefe of East San Diego.

Michigan.

The firm of Jokela and Son of Laurium has leased a ground floor apartment in the O'Neil block, corner of Third and Osceola Streets, and have established a retail electrical goods and hardware business.

The Munger Hardware Company of Charlotte has been completely destroyed by fire.

Nebraska.

The A. A. Becher Hardware store of Wisner has been damaged by fire.

John J. Cloos has sold out his hardware business at Havelock.

Ohio.

R. F. Fawcett, who has been with the Salem Hardware Company, Salem, for twenty-one years, will resign his position as manager and secretary of the firm, to be effective May 1st. Mr. Fawcett will move to Asheville, North Carolina, where he expects to enter the hardware business with his brother, E. C. Fawcett.

Wisconsin.

Clarence W. Barney of Milltown has purchased the local stock and business of Dahl and Company, Barron. He has already taken possession.

Stove Prices Can Be Lowered, Profits Increased by Using Intelligently Intensive Selling Methods

*Discussion Between Manufacturer, Retailer and Salesmen Shows
Remedy for Present Unsatisfactory Condition in Stove Field.*

THE Stove Committee is in session.

Its membership is composed of:

(1) A successful manufacturer whose production has grown much faster during the past ten years than the population, and his Company has been among the leaders for more than twenty-five years; name, Mr. Roberts;

(2) A traveling salesman whose record covering twenty years and more is one of increased sales by number of units as well as by dollars; name, Mr. King;

(3) A retail stove merchant who never bothered about mail order or department store competition, but whose range sales in a city of less than twenty thousand approached the two hundred mark in 1923; name, Mr. Smith;

(4) A retail stove salesman who makes his entire salary on the stoves and ranges that he sells for Smith; name, Mr. Dickson.

And (5) the writer of this article.

The session happened to be held in the office of the manufacturer, to which the stove merchant had brought his salesman; Roberts had been discussing the matter of the steadily increasing selling expense of the manufacturer with King when the other parties came in.

After due introductions, the manufacturer suggested that possibly the visitors might have something worth while to offer on that point, and Smith, the retail stove merchant, went on:

"It does seem to me that there is an altogether too wide spread between the cost of pig iron and the finished stove. Of course, I know that it costs more to make them than in 1917, so far as the actual labor is concerned, but with the more modern methods there certainly must have come economies in sufficiently large volume to make up for the

greater portion of the wage advances."

ROBERTS: "We are continually stressing the matter of economical operations, and it is safe to say that if it had not been for these economies that we have been able to put through, ranges would cost far more than they do now."

MR. SMITH: "All I can say is that when we started selling your

ranges to tell me the same thing, but I come back with something like this: 'Of course, there is something to that, but do not forget, please, that if you figure the price in bushels of corn, or in eggs or butter, your argument falls rather flat, because I can remember that at the time Mrs. Jones bought her first range eggs were taken in trade at nine cents a dozen, and today produce dealers in the country are glad to pay all the way from thirty cents up, according to grade, and the same way with butter. We all want prices to be lower on what we buy, but if we are working for wages or have anything else to sell, there is nothing doing. The price we ask is always right, in that case.'"

ROBERTS: "The problem that I am trying to solve is this: How can I as a manufacturer reduce my selling expense to a point where it will show in my selling price, for of course, my prices are governed only by my cost of manufacture and my cost of selling? I am inclined to believe that there are two factors which operate against a reduction of selling costs and which will continue to do so, until we get to a point where we manufacturers as a class, on one hand, and you as retail merchants as a class, on the other hand, come to realize that a kitchen range is not to be considered as an ordinary piece of merchandise, like a package of tacks or a pound of lard, but that it is a specialty in a very peculiar sense, and that, therefore, it must be sold by entirely different methods. We have lost sight of this fact, and particularly since the war period, when in too many cases it was not a case of selling but of allowing people to buy at the high price we set on it.

"I want to say this, however, that there are still a lot of merchants, like Mr. Smith here, who are show-



It's a joy to work in a kitchen like this

with its cheeriness, cleanliness, sunshine and labor-saving devices. To the American housewife, the Paramount Oven Heat Regulator is chief among these labor-savers. No longer is it necessary to spend heart-breaking hours over a scorching stove. 45 minutes to prepare a roast, vegetables and dessert for cooking. The whole meal is set in the oven, the Paramount Oven Heat Regulator is set, then you can leave it to finish your other duties, knowing that when you return you will find delicious, appetizingly, cooked foods.

Paramount
GAS RANGES

Rigid riveted body construction of unbreakable malleable iron and sheet steel. Rust-resisting Miron Process cooking top (and oven linings) require no polish for the top.

A multitude of other advantages and conveniences recommend Paramount Gas Ranges. Let us demonstrate one for you. Visit our stove department today and be convinced.

Van's Hardware
"The Store for Quality and Service."

408-410 Duane St. Phone 548.

Green Bay, Wisconsin, Gazette Presented This Chic Little Stove Advertisement to Its Readers.

ranges they sold for the equivalent of eighty bushels of wheat each. The ranges you sold us last year will not bake or roast any better nor last any longer, and yet the price means one hundred and fifty bushels of wheat. There is something wrong."

DICKSON: "That is right. Everybody in the country that I talk

ing that ranges and stoves can be sold in good quantities even in communities where the people are supposed to be hard up, and I am inclined to believe that if we look into the methods that they are pursuing we shall find the solution we are after, and then selling costs will be lower, both for the manufacturer and the retail merchant, which will mean lower prices for the consumer to pay."

SMITH: "So far as I can see there is nothing especially peculiar or striking in our methods. All we do is to make sure that when a person gets in the notion that she must have a new range she thinks of us—not only first, but also with the kindest and most favorable thoughts. Mr. Dickson can probably tell you more about that than I, for he has charge of the stove sales in our store."

DICKSON: "All we do is really nothing more or less than keeping after them every day in the week, with personal calls, with post cards and letters, with newspaper advertisements, with selling help folders from the manufacturers. We have a very complete card list of prospects, and our system is operating so well that we can practically foretell on Monday morning how many ranges we will sell during that week and who will buy them."

"One of the first things I did when I started this work with Mr. Smith was to make a list of all the families that had bought ranges and stoves from our store, putting down the kind, size and price, as well as the year of the purchase."

"The next step was to make a careful canvass through which we obtained similar information as to the other families in the town. These two lists gave us something definite to work on. The plan we used was as follows:

"We announced in the local papers and at the high school that we wanted fifty canvassers. About eighty were finally put on, and in less than a week we had a complete list of the families, the make, price and number of range, how long in use, how well satisfied or what com-

plaints as the case might be. Each canvasser was paid five cents for each properly filled-in card and in addition we gave \$100.00 in prizes for the four largest numbers of cards turned in. The cost of the canvass was \$350.00.

"These cards were sorted according to year of purchase and condition of range, and then I went to work on my intensive selling work—keeping after them, day in and day out, and lots of evenings, too, for that matter."

"The best thing that I can say is that in 1923 we sold over 200 ranges

good salary for a town of this size. My net profit was quite as satisfactory."

"The chief point is, however, that in no year before had we ever sold more than 75 ranges, and I was almost on the verge of discontinuing the stove department when Mr. Dickson came to me with his proposition."

"Now, we increased the total stove sales in 1923 for our town by at least 50 ranges, I am sure, for Mr. Dickson induced that additional number to buy who might otherwise have gone on for several years."

A NEW MAJESTIC

In Your Kitchen is an Indication of Luxury
And Far Sighted Economy in
The Household.



THE GREAT MAJESTIC

Lasting Qualities

Are more important than the first cost in a Range. The range that gives long service, with better cooking is the range to buy for economy, comfort and lasting satisfaction.

See this Range now at our Spring Demonstration and Sale. ORDER YOUR Range and secure the fine SET of WARE FREE.

THE GREAT MAJESTIC

Is a Range with a Reputation that generations of users have given it. Your neighbors have tested its qualities and will tell you that all claims for it are true and in the NEW MAJESTIC you will find it as beautiful as it is dependable an ornament to any kitchen.



Lebanon Hardware Co.

217 NORTH EIGHTH STREET LEBANON, PA.

Advertising a Free Range Demonstration and Special Offer With Each Purchase in Lebanon, Pennsylvania, Report.

and about 60 heating stoves, and that Mr. Smith made more money on his investment in the stove department than in any previous year."

SMITH: "I am frank to say that when Mr. Dickson put the proposition up to me, I was skeptical, but he finally convinced me. We spent last year for advertising, of all sorts, for the stove department about \$550.00 and paid Mr. Dickson one-third of the gross margin on all sales in that department, besides a percentage on whatever else he sold for the other departments. Altogether he received nearly \$3,400.00, which you will admit is a pretty

"In other words, if all your other customers did as well in proportion you would be able to increase your production about twenty-five per cent, and that would cut down your costs, wouldn't it? Both for production and selling."

ROBERTS: "I really believe that you have found a way out, and I am going to ask you to tell your experience to our entire sales force, so that they will carry the story to our other customers. In the meantime, I notice, Mr. Pedersen has taken notes of what we have been saying. Are you going to publish it?"

The writer: "You bet your sweet

life, I am. This is the best thing that I have heard in many a day, and we are going to spread the good news—not only to those of your customers that we have on our list, but also to the many other subscribers that have been troubled about their stove business. I verily believe that Smith and Dickson have

of farm produce were considered the proportion was much fairer than was thought at first.

(3) The real answer to both of the former problems is found in the result of the intelligently conceived selling campaign of the retail stove merchant and the efficient manner in which it was carried on.

Stove and the Summit Room Heater, making these lines in the Morrison plant and doing business under the name of the Summit Heavy Cannon Stove Company, not incorporated.

For the present, repairs for the complete line of Summit products, except furnaces, will be filled by the new organization. Accounts due to the old company are payable to the Summit Stove Company.

Prominent Canadian Stove Man, Charles E. Stewart, Passes On.

It is with regret that we announce the death of Charles Edgar Stewart, President of the James Stewart Manufacturing Company, makers of stoves and ranges, Woodstock, Ontario, Canada, at the age of sixty years.

Although doing business exclusively in Canada, Mr. Stewart was well acquainted with and had many friends among the stove manufacturers in the United States who will grieve to learn of his demise.

Are You One of This Kind?

When you were a kid Old Man Coogan kept the variety store in Whiskbroom Center. His sugar barrel stood next to the kerosene can and he sold harness for both horses and ladies. If you had mentioned "Overhead" to him, he would have thought you were talking about the roof. He knew as much about cost-keeping as he did about the memoirs of Madame du Barry, and he connected advertising with circus posters.

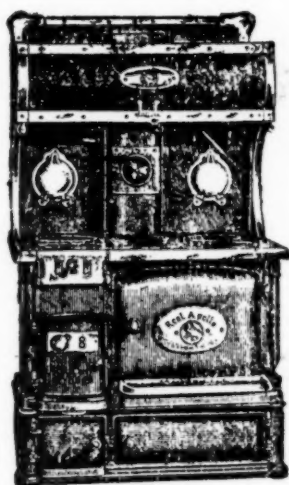
Nowadays you can't laugh these items off; they're there whether you like them or not. If you'll not take the trouble to find out what your depreciation on fixtures is, Old Julius Whoosis across the street will, and he'll buy you out in a couple of years. You may think delivery costs and insurance are as unimportant to you as skid chains are to a hen, but there is always a competitor who'll make it his business to know where every cent goes.

It costs money not to advertise.

"A Thing of Beauty and Joy Forever."

The Old Reliable BUCKWALTER ENAMELED STOVES AND RANGES

No Blacking—No Dirt—Saves Money—Saves Work.



Banishes
all kitchen drudgery

Enamelled in Colors
High Warming Closets
Aluminum Ovens
and Gunmetal Tops

A choice of either coal or combination gas and coal ranges that are good bakers, coal savers, an economical stove in every way, a stove that will give life-long service. Let us show them to you today.

The Hazleton Hardware Co.

Both Phones

33-35 W. Broad St.

Hazleton, Pennsylvania, Standard-Sentinel Carries Advertisement Which Shows Hardware Merchant There to Be Up and Doing.

worked out a plan which can be adapted to any community with just as satisfactory results."

Editor's Note: The important points in this article are these three:

(1) The discussion started with the usual talk about the wide spread between cost of the raw material and price of the finished material. At first there was no real answer to the problem.

(2) The next question was that of the seemingly disproportionate advance in price of the range as against what is supposed to be the chief agricultural product, but it was shown that when other items

Summit Stove Company Has Ceased Manufacture of Stoves and Warm Air Furnaces.

George W. Robinson, President and Manager of the Summit Stove Company, Morrison, Illinois, announces that the Company has discontinued the manufacture of stoves, ranges and furnaces.

The St. Clair Foundry Corporation, Belleville, Illinois, has bought the patterns for the Summit furnaces and is now in position to furnish these high-grade furnaces as well as repairs for them.

Mr. Robinson will manufacture and sell the Summit Heavy Cannon

Advertising Is the Formal Invitation to Potential Customers to Visit Your Store.

See That Your Stock and Your Salesmen—the Customers' Hosts—Are Always Ready to Receive Their Guests.

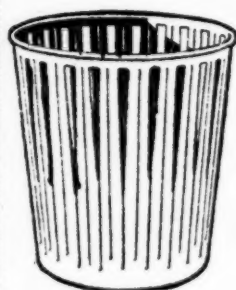
EVERY farmer considers himself a progressive farmer, therefore, every farmer who sees the accompanying advertisement, reproduced from the Dowagiac (Michigan) *News*, will read what the Armstrong Hardware has to say regarding incubators.

Aside from the absence of prices, this ad is well arranged. It carries a specific message and is minus typographical errors. The size of the type is well chosen.

* * *

The advertisement reproduced herewith from the Franklin, Pennsylvania, *News-Herald*.

This advertisement is an excel-



Waste Baskets

For Home or Office Use.

Large size, all metal—finished in oak color and olive green.

Beautiful square baskets for home use in black, white, rose, blue, ivory, orange and tan.

'Phone us your order. We Deliver.

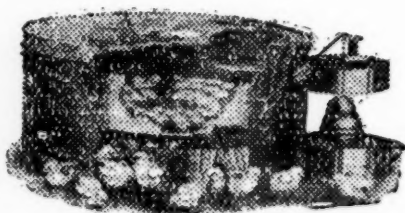
OIL CITY HARDWARE CO.

214-216 Centre Street

John A. Stubler

PROGRESSIVE FARMERS

are realizing more and more, every year the revenue producing value of POULTRY.



A Simplicity INCUBATOR and a SIMPLICITY BROODER will produce more revenue for amount invested than any other item on a farm. Get in the game. Now is the time to hatch your chicks.

Incubators, Brooders and Chicken Accessories

ARMSTRONG HDW.

DOWAGIAC, MICH.

lent example of a highly concentrated piece of copy. It gives a very good description of the basket in question. The illustration is good and the typography of the ad is well worked out.

It is, however, customary when making an appeal for telephone orders to give the 'phone number, thus adding to the convenience of the customer.

The ad should also have carried a few prices so as to add even more to its pulling power.

Service Is Only True Basis for Lasting Success.

All businesses worth while—and that is enduring—is based on superior service. In primitive business, one man raised corn, another hunted pelts, and they exchanged their products. The basis was, "You work for me, I'll work for you." That basis has never altered. Every sale or every purchase, every business alliance should be based on service only. If this is faulty, or if it is superlative, men will find it out. And the verdict will fix your place.

Record Breaking Winter Car Loadings Indicate Enormous Consumption—French May Accept Dawes' Report.

Week Closes Quiet on Non-Ferrous Metals With Easier Prices—Failure of Congress on Tax Reduction Disturbing

PRODUCTION and consumption of commodities continue large, but buyers are shy regarding future commitments.

The recovery in francs has removed a dangerous possibility, but has not yet been reflected in European business and financial circles, where business continues to make slow progress toward normalcy.

The Washington scandals are very disturbing and if continued promise to be reflected in business.

The iron and steel trade continues to make a fine showing, but a falling off in purchases is noted, and prices are inclined to be easier, especially in the East.

In non-ferrous metals, after strong markets at opening, the week closes quiet at easier prices, and in the case of tin a break of $2\frac{1}{4}$ cents per pound from the highest. Demand generally from consumers has been limited, with very little future buying.

Wall Street continues to mark time and there is no doubt that business men are disturbed over the events in Washington, and the failure to pass the tax reduction bill and the muck-raking and political maneuvering going on is disgusting to everybody.

The basic industries at home, however, are exceptionally active.

Copper.

Business in the copper market outside of New York was dull and weak, with prices lower to sell.

Electrolytic was nominally quotable at 13.60 cents f. o. b. refinery for prompt, March and April shipment, 13.62 $\frac{1}{2}$ cents for May and 13.65 cents for second quarter. Third and fourth quarter positions were nominally $\frac{1}{8}$ cent lower, but there was not enough business to establish prices.

Lake copper continued dull and

easier and nominally held at 13.75 cents to 13.87 $\frac{1}{2}$ cents delivered for early shipment.

Casting copper was dull and lower to sell. There were few buyers over 13.25 cents refinery, but few sellers under 13.37 $\frac{1}{2}$ cents f. o. b. refinery.

There were no changes in Chicago quotations.

Tin.

The tin demand from American consumers was on a very small scale at the beginning of the week, but on the break there was good buying at around 56.50 cents to 56.75 cents for prompt Straits and 54.75 cents to 55.25 cents for futures.

The prices at the end of the week were about $\frac{1}{2}$ cent higher than these, but we do not think that consumers are in any frame of mind to follow the market up and will again buy sparingly if the advance is resumed.

Through the delay in the arrival of Eastern steamers, the supplies available for the market in March may fall short of 6,000 tons, and American deliveries are estimated at 5,000 to 5,500 tons.

The statistics at the end of this month may again show an increase in the world's visible supply.

Chicago quotations are: Pig tin, \$58.75 per hundred pounds; bar tin, \$59.75.

Lead.

According to the *Engineering & Mining Journal-Press*, the United States production of lead is at present about 50,000 short tons a month. Mexican output is around 15,000 tons. Both can be increased somewhat and probably will under the influence of the high price. Hecla Mining's output of 1,600 tons a month should help to meet demand in another two months. Utah production of lead is slowly increasing.

Producers are quoting 9 cents, New York, and 8.87 $\frac{1}{2}$ cents to 9 cents, St. Louis, for April and May shipment lead.

Prompt lead is in light demand, but on such inquiries as appear premiums are asked, up to 9.25 cents New York and 9.12 $\frac{1}{2}$ cents St. Louis.

There was no change in the Chicago quotations.

Zinc.

Fully 3,000 tons of zinc sold for export last week. Joplin district mines closed Monday for a week, following ore sales at \$40 Saturday.

The February statistics showed a decrease in smelter stocks of 3,505 tons.

Domestic galvanizing buying has remained slow, but smelters have not been pushing sales, waiting on their market.

The price of prime western held at 6.50 cents and then dropped to 6.40 cents, East St. Louis, for prompt and April shipments.

Chicago quotations remain the same.

Solder.

Chicago warehouse prices on solder are as follows: Warranted, 50-50, \$36.00; Commercial, 45-55, \$34.50, and Plumbers', \$34.00, all per 100 pounds.

Wire and Nails.

Because during February wire products makers filled up with business for 90 days and now are operating on those backlogs, the present period is comparatively inactive as to new business.

Prices are unchanged on the basis of 2.75 cents, Pittsburgh, for plain wire and 3.00 cents, base Pittsburgh, for wire nails.

Cement-coated nails are averaged at 2.60 cents, base Pittsburgh, concessions under 2.70 cents continu-

Current Hardware and Metal Prices.

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS

FIG IRON.

Chicago Foundry..	24 50
Southern Fdy. No.	
2	29 01 to 29 51
Lake Sup. Char-	
coal	29 04
Malleable	24 50

FIRST QUALITY BRIGHT TIN PLATES.

	Per Box
IC 14x20 112 sheets	\$12 45
IX 14x20	14 05
IXX 14x20 56 sheets	17 57
IXXX 14x20	18 12
IXXXX 14x20	18 65
IC 20x28 112 sheets	27 50
IX 20x28	29 85
IXX 20x28 56 sheets	16 15
IXXX 20x28	17 20
IXXXX 20x28	18 25

TERNE PLATES.

	Per Box
IC 20x28, 40-lb. 112 sheets	\$25 60
IX 20x28, 40-lb. ..	28 50
IC 20x28, 30-lb. ..	21 80
IX 20x28, 30-lb. ..	24 70
IC 20x28, 25-lb. ..	20 80
IX 20x28, 25-lb. ..	23 70
IC 20x28, 20-lb. ..	18 30
IX 20x28, 20-lb. ..	21 15
IC 20x28, 15-lb. ..	17 05
IX 20x28, 15-lb. ..	15 75
IC 20x28, 8-lb. ..	14 05

COKE PLATES.

Cokes, 80 lbs., base, 20x28.	\$13 85
Cokes, 90 lbs., base, 20x28.	14 10
Cokes, 100 lbs., base, 20x28.	14 45
Cokes, 107 lbs., base, IC	
20x28	14 85
Cokes, 135 lbs., base, IX	
20x28	17 40
Cokes, 155 lbs., base, 56	
sheets	9 75
Cokes, 175 lbs., base, 56	
sheets	10 65
Cokes, 195 lbs., base, 56	
sheets	11 70

BLUE ANNEALED SHEETS.

Base	per 100 lbs. \$3 50
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ONE PASS COLD ROLLED BLACK.

No. 18-20	per 100 lbs. \$4 50
No. 22-24	per 100 lbs. 4 55
No. 26	per 100 lbs. 4 60
No. 27	per 100 lbs. 4 65
No. 28	per 100 lbs. 4 70
No. 29	per 100 lbs. 4 75

GALVANIZED.

No. 16	per 100 lbs. \$4 85
No. 18-20	per 100 lbs. 5 00
No. 22-24	per 100 lbs. 5 15
No. 26	per 100 lbs. 5 30
No. 27	per 100 lbs. 5 45
No. 28	per 100 lbs. 5 60
No. 30	per 100 lbs. 6 10

BAR SOLDER.

50-50	per 100 lbs. 36 00
Commercial.	
45-55	per 100 lbs. 34 50
Plumbers	per 100 lbs. 34 00

ZINC.

In Slabs	7 75
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SHEET ZINC.

Cask lots, stock, 100 lbs.	11 75
Less than cask lots, 100 lbs.	12 25

BRASS.

Sheets, Chicago base.	20 1/2 c
Mill Base	18 1/2 c
Tubing, brazed, base.	25 1/2 c
Wire, base	18 1/2 c

COPPER.

Sheets, Chicago base.	21 1/2 c
Mill base	20 1/2 c
Tubing, seamless, base.	24 c
Wire, No. 9 & 10 B. & S. Ga.	
.....	17 1/2 c
Wire, No. 11, B. & S. Ga.	17 1/2 c

LEAD.

American Pig	\$10 75
Bar	11 75

Sheet.	
Full Coils	per 100 lbs. 10 75
Cut Coils	per 100 lbs. 11 75

TIN.

Pig Tin	per 100 lbs. 58 75
Bar Tin	per 100 lbs. 59 75

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ADZES.

Coopers'.	
Barton's	Net
White's	Net

AMMUNITION.

Shells, Loaded, Peters.	
Loaded with Black Powder 18%	
Loaded with Smokeless Powder	18%
Winchester.	
Smokeless Repeater	
Grade	20 & 4%
Smokeless Leader	
Grade	20 & 4%
Black Powder	20 & 4%
U. M. C.	
Nitro Club	20 & 4%
Arrow	20 & 4%
New Club	20 & 4%
Gun Wads—per 1000.	
Winchester 7-8 gauge 10&7 1/2%	
" 9-10 gauge 10&7 1/2%	
" 11-28 gauge 10&7 1/2%	

ASBESTOS.

Paper up to 1/16	6c per lb.
Rollboard	6 1/2 c per lb.
Millboard 3/32 to 1/2	6c per lb.
Corrugated Paper (250	
sq. ft. to roll)	\$6.00 per roll

AUGERS.

Boring Machine	40&10%
Carpenter's Nut	50%
Hollow.	
Stearns, No. 4, doz.	\$11 50
Post Hole.	
Iwan's Post Hole and Well 35%	
Vaughan's, 4 to 9 in.	\$15 50

AXES.

First Quality, Single	
Bitted (unhanded), 3 to	
4 lb., per doz.	\$14 00
Good Quality, Single	
Bitted, same weight, per	
doz.	13 00

BAR, CROW.

Steel, 4 ft., 10 lb.	\$ 80
Steel, 5 ft., 18 lb.	1 40
Pinch Bars,	
6 1/2 ft., 24 lb.	1 60

BAR, WRECKING.

V. & B. No. 12	\$0 34
V. & B. No. 24	0 43
V. & B. No. 324	0 57
V. & B. No. 30	0 48
V. & B. No. 330	0 63

BITS.

All Vaughan and Bushnell.	
Screw Driver, No. 30, each.	\$ 27
Screw Driver, No. 1, each.	16
Reamer, No. 80, each.	41
Reamer, No. 100, each.	41
Countersink, No. 13, each.	20
Countersink, Nos. 14-15, each	27

BLADES, SAW.

Wood.	
Atkins 30-in.	
Nos.	6 40 26
	\$8 90 \$9 45 \$5 40

BLOCKS.

Wooden	45%
Patent	45%

BLOW TORCHES (See Firepots).

BOARDS.

	Per Doz.
Stove.	
Crystal, 33"	\$23 90
Wash.	
No. 760, Banner Globe	
(single)	per doz. \$5 25
No. 652, Banner Globe	
(single)	per doz. 6 75
No. 801, Brass King,	
.....	per doz. 3 25
No. 860, Single—Plain	
Pump	4 25

BOLTS.

Carriage.	
Small, roll thread.	50 & 10%
Small and Large cut	
thread	50%
Machine.	
Small, roll thread.	60 & 5%
Small, cut thread.	50 & 10 & 5%
Large, cut thread.	50 & 10 & 5%
Stove	70 & 10 & 5%

BRACES, RATCHET.

V. & B. No. 444 8 in.	\$4 54
V. & B. No. 222 8 in.	3 39
V. & B. No. 117 8 in.	3 55
V. & B. No. 11 8 in.	3 02

BRUSHES.

Hot Air Pipe Cleaning.	
Bristle, with handle, each.	\$0 85
Flue Cleaning.	
Steel Only, each.	\$1 25

BURRS.

Copper Burrs only.	40-10%
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BUTTS.

Steel, antique copper or dull	
brass finish—case lots—	
3 1/2 x 3 1/2—per dozen pairs	\$3 12
4 x 4	4 40

Heavy Bevel steel inside sets,	
case lots—	
.....per dozen sets	7 30
Steel bit keyed front door	
sets, each	1 90
Wrought brass bit keyed	
front door sets, each.	3 25
Cylinder front door sets,	
each	7 50

CEMENT, FURNACE.

American Seal, 5 lb. cans, net	\$ 45
" 50-lb. cans, "	90
" 25 lb. cans, "	2 00
Asbestos, 5 lb. cans, net.	45
Pecora	per 100 lbs. 7 51

CHAINS.

% in. proof coil chain per	
100 lbs.	\$8 25
American coil chain.	40 & 10%

CHIMNEY TOPS.

Iwan's Complete Rev. &	
Vent.	30%
Iwan's Iron Mountain only.	35%
Standard	30 to 40%

CHISELS.

Cold.	
V. & B. No. 25, 1/4 in., each	\$0 26
V. & B. No. 25, 1/2 in., each	41
Diamond Point.	
V. & B. No. 55, 1/4 in.	0 31
V. & B. No. 55, 1/2 in.	0 48

Firmer Bevelled.	
Round Nose.	
V. & B. No. 65, 1/4 in.	0 29
V. & B. No. 65, 1/2 in.	0 40

Socket Firmer.	
Cape.	
V. & B. No. 50, 1/4 in.	0 31
V. & B. No. 50, 1/2 in.	0 57

CHUCKS, DRILL.

Goodell's, for Goodell's Screw	
Drivers	List less 35-40%
Yankee, for Yankee Screw	
Drivers	\$6 00

CLAMPS.

Adjustable.	
No. 100, Door (Stearns)	
doz.	\$22 00

Carpenters'.	
Steel Bar..List price plus.	20%

Hose.	
Sherman's brass, 3/4-inch	
per doz.	\$0 48
Double, brass, 3/4-inch, per	
doz.	1 20

CLINKER TONGS.

Front Rank, each.	\$1 75
Per doz.	13 00

DAMPERS. CLIPS.

Damper.	
Acme, with tail piece,	
per doz.	\$1 30
Non Rivet tail piece,	
per doz.	31

COPPERS—Soldering.

	Per lb.
Pointed Roofing.	
3 lb. and heavier.	per lb. 40c
2 1/2 lb.	45c
2 lb.	48c
1 1/2 lb.	55c
1 lb.	60c

CORD.

No. 7 Std. per doz. banks.	\$11 00
No. 8 " " " "	12 60

CORNICE BRAKES.

Chicago Steel Bending.	
Nos. 1 to 6 B.	10%

COUPLING HOSE.

Brass	per doz. \$2 30
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CUT-OFFS.

Kuehn's Korrekt Kutoffs:	
Galv. plain, round or cor. rd.	
Standard gauge	40%
26 gauge	10%

DAMPERS.

"Yankee" Hot Air.	
7 inch, each 20c, doz.	\$1 75
8 " " " "	2 40
9 " " " "	3 00
10 " " " "	3 60

Smoke Pipe.	
7 inch, each.	\$ 35
8 " " "	40
9 " " "	50
10 " " "	60
12 " " "	90

Reversible Check.	
8 inch, each.	\$1 50
9 " " "	1 70

DIGGERS.

Post Hole.	
Iwan's Split Handle	
(Eureka)	
4-ft. Handle...per doz.	\$14 00
7-ft. Handle...per doz.	35 00
Iwan's Hercules pattern,	
per doz.	14 90

DRILLS.

V. & B. Star, 12-inch Length.	
1/4, 5/16 and 3/8, each.	\$ 25
1/2, each	34
1, each	54
1 1/2, each	81
V. & B. Star, 18-inch Length.	
5/16 and 3/8, each.	\$ 35
1/2, each	45
1, each	63
1 1/2, each	1 05

EAVES TROUGH.

Milcor	
Galv. Crimpedge, crated.	75%

ELBOWS—Conductor Pipe.

Milcor	
Galv. plain or corrugated,	
round flat	
Crimp, Std. gauge.	65%
26 Gauge	40%
24 Gauge	10%

Square Corrugated.	
Milcor	
Standard gauge	50%
26 gauge	30%

Portico Elbows.	
Standard Gauge Conductor Pipe,	
plain or corrugated.	
Not nested	70 & 5%
Nested solid	70 & 5%

ELBOWS—Stove Pipe.

1-piece Corrugated. Uniform.	
5-inch	

ing to come out. Operations are on a 75 per cent basis.

New discounts on fencing to jobbers and distributors have been adopted by the manufacturers and are now in effect. These extend the net basis to five months as compared with 60 days previously.

Discount for cash at the rate of 5 per cent is granted. Some producers are reported to be in need of fencing business.

Bolts and Nuts.

In all probability prices on nuts, bolts and rivets will be reaffirmed for second quarter at Pittsburgh on the basis of 60 and 5 off for large machine bolts, and \$4.25 off list on hot pressed square or hexagons.

Some makers of bolts and nuts at Chicago are taking second quarter business at the old level of 60 and 10 off for large machine bolts. Efforts to establish 60 and 5 off do not appear successful and the feeling is that in view of general business conditions it is wise not to attempt an advance. Specifications for bolts and nuts continue fair.

Tin Plate.

The great advance in the pig tin market in the past few months raises the question whether the price of tin plate for the second half of the year may not be higher. There has been a sharp advance in lead and the balance of probability seems to be that prices of terne plate will be affected.

The tin plate manufacturers do not appear to have any particular expectation that tin or lead will decline in the near future. Some of them express the fear that when they come to buy tin for second half the demand will put the market up farther.

Sheets.

Shading on prices in the sheet market has been spreading pretty steadily for several weeks past and there is more shading now than a week ago. The increase in shading seems to be more in the direction of an increase in the tonnage sold at concessions than in the direction of there being an increase in the amount of the concessions.

It seems still to be true that in most cases the concession, when any is made, is a plain \$2.00 a ton, which would make prices of 2.90 cents on blue annealed sheets, 3.75 cents on black sheets and 4.90 cents on galvanized sheets.

However, in view of various experiences during many years past, it would be injudicious to believe that in no case does the shading, or cutting, exceed the amount mentioned.

Taking the industry as a whole, it is doubtful whether the galvanizing capacity is being utilized to the extent of 75 per cent, and a close count might not show more than 60 per cent.

Judged by the shading in the market, orders for galvanized sheets have been hard to get, but at the same time there is much complaint about the difficulty of getting labor for galvanizing departments.

The workmen have a more or less chronic aversion to the department. In the summer it is too hot, while in the winter the atmosphere is objectionable, even though great pains are taken to equip departments with appliances for drawing off the fumes.

Old Metals.

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$18.50 to \$19.50; old iron axles, \$27.00 to \$27.50; steel springs, \$20.50 to \$21.00; No. 1 wrought iron, \$14.00 to \$14.50; No. 1 cast, \$18.50 to \$19.00, all per net tons. Prices for non-ferrous metals are quoted as follows, per pounds: Light copper, 9¼ cents; light brass, 6 cents; lead, 6 cents; zinc, 4 cents, and cast aluminum, 17¼ cents.

Pig Iron Market Quiet; Selling Lags, But Undertone Remains Strong at Chicago.

South Competes With North—Birmingham Quotations on No. 2 Foundry Remain Firm at \$23 and \$24.

NO YEAR in history showed such a gross gain in pig iron production as 1923, according to *Iron Trade Review*. This is the fact that stands out most strongly in the official statistics of pig iron production for 1923 which now have been announced. The gain in output of 1923 over 1922 reached the astounding figure of 13,242,000 tons, or 48.3 per cent. This exceeds the expansion of 1922 production over 1921, another period of unusually large change, when the gain was 10,531,878 tons.

Total production of pig iron in 1923 was the greatest on record and reached 40,361,146 tons. This exceeds by 926,349 tons the previous high mark of 39,434,797 tons in 1916.

Basic, foundry and malleable grades attained new tonnage peaks, but Bessemer, charcoal and forge, as was to be expected, were considerably down from the figures for a number of previous years.

The increase in malleable iron probably was the most conspicuous, for in 1923 the output of this grade of 1,571,064 tons was 260,013 tons, or 20 per cent higher than the former top point in 1920.

So far in 1924 pig iron production, while on a large scale, has been behind that for the corresponding period in 1923. As has been pointed out, steel production is close to the high record level at this time, but pig iron has been lagging and in February was at only 85 per cent of the maximum rate in history last May.

The way the year has started out, taken in connection with other circumstances, including the large total of stocks still on merchant furnace yards, discourages the probability of any new record of pig iron production being attained in 1924.

Taken as a whole, however, the past fourteen months probably have shown the greatest sustained production of pig iron in history.

Uniform, Collar Adjustable.	
5-inch	Doz. \$2 00
6-inch	2 10
7-inch	2 60

WOOD FACES—50% off list.

FENCE.	
Field Fence	60 1/2%
Lawn	61%

FILES AND RASPS.	
Heller's (American)	60-5%
American	65-5%
Arcade	60-10%
Black Diamond	50-5%
Eagle	60-10%
Great Western	50-10%
Kearney & Foot	50-10%
McClellan	50-10%
Nicholson	50-10%
Simonds	60%

FIRE POTS.	
Ashton Mfg. Co.	
Complete line	
Firepots and Torches	52%
Otto Bernz Co.	
No. 1 Furn. Gasolene with large shield, 1 gal.	\$ 6 75
No. B Furn. Kerosene, 1 gal.	15 12
No. 10 Brazier, Kerosene or Gasolene, 10 gals.	47 52
No. 5 Torch, Gasolene or Kerosene, 1 pt.	7 92
No. 83 Torch, Gasolene, 1 quart	5 40
No. 86 Torch, Gasolene, 1 pt.	4 05

Clayton & Lambert's.
East of west boundary line of Province of Manitoba, Canada, No. Dakota, So. Dakota, Nebraska, Kansas, Oklahoma, Amarillo, San Angelo and Laredo, Texas.....52%
West of above boundary line. 48%

Geo. W. Diener Mfg. Co.	
No. 02 Gasolene Torch, 1 qt.	\$ 5 55
No. 0250, Kerosene or Gasolene Torch, 1 qt.	7 50
No. 10 Tinner's Furn. Square tank, 1 gal.	12 60
No. 15 Tinner's Furn. Round tank, 1 gal.	12 00
No. 21 Gas Soldering Furnace	3 60
No. 110 Automatic Gas Soldering Furnace	10 50
Double Blast Mfg. Co.	
Gasolene, No. 25 and 35	60%
Quick Meal Stove Co.	
Vesuvius, F.O.B. St. Louis	30%
(Extra Disc't. for large quantities)	

Chas. A. Hones, Inc.	
Buzzer No. 1	\$ 9 00
" " 2	12 00
" " 22	13 50
" " 42	15 00
" " 43	19 00

FREEZERS—ICE CREAM.	
Peerless and Alaska	
1 quart	\$2 95
2 quart	3 45
3 quart	4 10
White Mountain	
1 quart	\$4 85
2 quart	5 65

GALVANIZED WARE.	
Falls (Competition), 8 qt.	\$1 85
10-qt.	2 10
12-qt.	2 30
14-qt.	2 57
Wash tubs, No. 1	\$6 25
No. 2	7 00
No. 3	8 25

GARAGE DOOR HARDWARE.	
Stanley	All net

GAUGES.	
Marking, Mortise, etc.	Nets
Wire.	
Disston's	25%

GIMLETS.	
Discount	65% and 10%

GLASS.	
Single Strength, A and B.	
all sizes	83 & 85%
Double Strength, A, all sizes	84%

GREASE, AXLE.	
Frazers	
1-lb. tins, 36 to case, per case	\$ 4 70
3-lb. tins, 24 to case, per case	7 80
5-lb. tins, 12 to case, per case	7 30
10-lb. tins, per dozen	19 40
15-lb. tins, per dozen	13 80
25-lb. tins, per dozen	19 80

HAMMERS, HANDLED.	
All V. and B.	Each, net
Blacksmiths' Hand, No. 6, 26-oz.	\$1 00
Engineers' No. 1, 26 oz.	1 00
Farrier's No. 7, 7-oz.	92
Machinists' No. 1, 7-oz.	78

Nail.	
Vanadium, No. 41, 20-oz. each	1 59
Vanadium, No. 41 1/2, 16-oz. each	1 59
V. & B., No. 11 1/2, 16-oz. each	1 01
Garden City, No. 11 1/2, 16-oz. each	75
Tinner's Riveting, No. 1, 8-oz. each	79
Shoe, Steel, No. 1, 18-oz. each	65
Tack.	
Magnetic.	
No. 5, 4-oz. each	81

HAMMERS, HEAVY.	
Farrier's, No. 10, 10-oz.	\$1 01
HANDLES.	
Axe.	
Hickory, No. 1	per doz. 4 00
Hickory, No. 2	3 00
1st quality, second growth	6 00
Special white, 2nd growth	5 00

Chisel.	
Hickory, Tanged, Firmer	
assorted	per doz. 55c
Hickory, Socket, Firmer,	
Assorted	per doz. 70c
File	per doz. \$1 20
Hammer and Hatchet.	
No. 1 per doz.	\$0 90
Second Growth hickory, per doz.	1 50

Soldering.	
Per doz.	\$2 40

HANGERS.	
Conductor Pipe.	
Milcor Perfection Wire	25%
Eaves Trough.	
Steel hangers	30%
Triple Twist wire	10%
Milcor Eclipse Wire	20%
Milcor Triplex Wire	15%
Milcor Milwaukee Extension.	15%
Milcor Steel (galv. after forming) List plus	12 1/2%
Milcor Selflock E. T. Wire, List plus	40%

HASPS.	
Hinge, Wrought, with staples.	Net

HATCHETS.	
V. and B. Supersteel.	Each
Broad, No. 1, 24-oz.	\$1 43
Half, No. 1, 16-oz.	1 25
Half, No. 3, 27-oz.	1 37
Claw, No. 1, 19-oz.	1 81
Flooring, No. 1, 20-oz.	1 43
Shingling, No. 1, 17-oz.	1 20
Lathing, No. 1, 14-oz.	1 20
Lathing, No. 2, 17-oz.	1 25

Vanadium Steel.	
Half, No. 62, 22-oz.	\$1 82
Underhill Pattern Lathing, 9 row, 19-oz.	2 29

HINGES.	
Heavy Strap, in Bundles.	
4 inch, dozen prs.	\$1 12
5 " " "	1 57
6 " " "	1 92
8 " " "	2 21
Extra Heavy T in Bundles.	
4 inch, dozen prs.	\$1 74
5 " " "	1 85
6 " " "	2 21
8 " " "	3 95

HOES.	
Garden	Net

HOOKS.	
Box.	
V. and B. No. 9, each	\$0 26
Conductor.	
Milcor	
"Direct Drive" Wrought Iron for wood or brick	15%
Cotton.	
V. and B. No. 8, each	24
Hay.	
V. and B. No. 1, each	26

Bar Meat.	
V. and B. No. 26, 1/4", each	09
V. and B. No. 28, 1/4", each	16
Screw Meat.	
V. and B. No. 2, per gro.	6 50
Butchers' "S."	
V. and B. No. 6, each	08
V. and B. No. 8, each	11

HOSE.	
Per Ft.	
1/2-in. 2 ply molded	.9 1/2 c to 12 1/2 c
1/2-in. cord	.8 1/2 c to 10c
1/2-in. wrapped	13 1/2 c

HUMIDIFIERS.	
"Front-Range" Automatic.	
In single lots	50%
In lots of 10 or more	50-5%
In lots of 25 or more	50-10%
Vapor pans, etc., each	50%

IRONS.	
Sad.	
Genuine Mrs. Potts, nickel plated, per set	\$1 55
Asbestos No. 70, per set	2 10
Asbestos No. 100, per set	2 30
E. C. Stearns'.	
No. OA Corner, doz. sets	\$2 50
No. OB	2 75

KNIVES.	
Butcher.	
Beechwood Handles, 6-inch blade	35%
Beechwood Handles, 7-inch blade	35%
Beechwood Handles, 3-inch blade	25%
Cooper's Hoop	25%
Drawing.	
Standard	25%
Adjustable	25%
Barton's Carpenters'	25%
Hay.	
Iwan's Solid Socket	25%
Heath's	25%
Iwan's Sickle Edge	25%
Iwan's Imp'd Serrated	25%
Hedge.	
Challenge	25%
Disston's No. 1	25%
Putty.	
Common	25%
Lander's	25%
Scraping.	
Beech Handles	25%
Lander's	25%

Hedge.	
Challenge	25%
Disston's No. 1	25%

Putty.	
Common	25%
Lander's	25%

Scraping.	
Beech Handles	25%
Lander's	25%

Hedge.	
Challenge	25%
Disston's No. 1	25%

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Putty.	
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Hedge.	
Challenge	25%
Disston's No. 1	25%

Putty.	
Common	25%
Lander's	25%

Scraping.	
Beech Handles	25%
Lander's	25%

Hedge.	
Challenge	25%
Disston's No. 1	25%

Putty.	
Common	25%
Lander's	25%

Scraping.	
Beech Handles	25%
Lander's	25%

Hedge.	
Challenge	25%
Disston's No. 1	25%

Putty.	
Common	25%
Lander's	25%

LEVELS.	
Disston, No. 28 Asst.	\$21 05
" No. 18, 20 in., each	1 33
" No. 22, 24 in., each	2 40
" Shafting, 6 in.	19 30
" " 6 in. gr. glass	24 30
" No. 1 Asst.	5 75
" No. 2 Asst.	12 40
" 24-26 in., each	1 02
" 28-30 in., each	1 00

LIFTERS.	
Stove Cover.	
Coppered	per gro. \$6 00
Alaska	4 75

LOCKS.	
Barn Door.	
No. 60 Stearn's	per doz. \$11 00
No. 80	20 00

MALLET.	
Carpenters'.	
Fibre Head No. 2, per doz.	\$12 00
" No. 3	15 50
" No. 3 1/2	20 50
Round Hickory, per	
doz.	\$3 00—5 00
Tinner's.	
Hickory	per doz. \$2 25

MATS.	
Door.	
National Rigid	5 & 10 & 15
Acme Steel Flexible	50%

MITRES.	
Galvanized steel mitres, and caps, end pieces, outlets	30%
Milcor	25%
Galv. one piece stamped	40%

MOPS.	
Cotton, Star (Cut Ends).	
Pounds 12' 15' 18' 24'-3-cz.	
Per doz. \$4 00 4 35 5 50 7 00	
Enterprise	16 1/2%
Parker	50 & 8%

NAILS.	
Cut Steel	\$4 70
Cut Iron	4 70

Wire.	
Common	3 30
Cement Coated	3 25

NETTING, POULTRY.	
Galvanized before weav-	
ing	45-10%
Galvanized after weav-	
ing	45%

NIPPERS.	
Nail Cutting.	
V. & B. No. 30	73c
Double Duty.	
V. & B. No. 60	76c
Hoof.	
Heller's	40 & 10%
V. & B. No. 52, each	52 25

NOZZLES.	
Hose.	
Diamond	5 75
Magic	per doz. \$9 50


OILERS.	
Chase Pattern.	
Brass and Copper	10%
Zinc Plated	40 & 5%

Railroad.	
Brass	20 & 5%
Coppered	50 & 5%

Steel.	
Copper Plated	70 & 5%

OPENERS.	
Delmonico	per doz. \$1 30
Never Slip	" 60

Crate.	
V. & B.	per doz. \$7 25—11 00



*The Best Eaves Trough
Miter in the
World*

Ask
your Jobber for
CHAMPION MITERS & ENDS
all Dependable Products ~

Champion
PRODUCTS

BRADEN MFG. CO. TERRE HAUTE
INDIANA



Memorial Monuments
Write for Prices and
Illustrations

Gerock Bros. Mfg. Co.
Sheet Metal Ornaments
and
STATUARY

1252 So. Vandeventer Ave.
St. Louis, Mo., U. S. A.

MEMORY

Sheets

GALVANIZED STEEL
BLACK STEEL
BLACK and GALVAN-
IZED ARMCO IRON
BLACK and GALVAN-
IZED TONCAN
METAL
TERNE PLATE
BRIGHT TIN
ZINC LEAD
COPPER

We sell the best grades of all
kinds of Sheet Metal.
Write today for complete catalog.

BERGER BROS. CO.
229 to 237 ARCH STREET
WAREROOMS AND FACTORY: 100 to 114 BREAD STREET
PHILADELPHIA, PA.

PERFORATED METALS



All Sizes and Shapes of Holes
In Steel, Zinc, Brass, Copper, Tinplate, etc.
For All Screening, Ventilating and Draining
EVERYTHING IN PERFORATED METAL

THE HARRINGTON & KING PERFORATING CO.
5649 FILLMORE ST.-CHICAGO, ILL. U. S. A.
NEW YORK OFFICE 114 LIBERTY ST.

SOFT

The deciding word in the
SHEET METAL SHOP

Inland Sheets

are soft and workable

Inland Copper Alloy Quality

insures longer life

INLAND STEEL COMPANY
38 South Dearborn St., Chicago
Works: Indiana Harbor, Ind.
Chicago Heights, ILL.
Branch Offices: Milwaukee St. Louis
St. Paul

ART METAL CEILINGS AND SIDE WALLS

QUALITY—DURABILITY—BEAUTY

Are thoroughly combined in **FRIEDLEY-VOSHARDT**
ART METAL CEILINGS AND SIDE WALLS. We have
added to our list a great number of new and handsome
designs. Special designs can be made if desired. Only
the *best* of materials used. We are prepared to serve
you. Ceiling Catalog No. 33 on request.

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FRIEDLEY-VOSHARDT CO.
Office: 733-737 S. Halsted St. Factory: 761-771 Mather Street
CHICAGO, ILLINOIS

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save 10% on your book purchases. Send in a
postal request today. Book Dept.

AMERICAN ARTISAN AND HARDWARE RECORD
630 South Michigan Avenue Chicago, Illinois

FAILS.	
Cream.	
14-qt. with gauge,	per doz. \$9 50
18-qt. without gauge,	per doz. 11 00
20-qt. without gauge,	per doz. 11 75

Sap.	
10-qt., IC Tin....	per doz. \$4 00
12- " " " " " "	5 50

Stock.	
Galv. qts. 14 16 18 20	
Per doz. \$9 75 10 75 12 75 14 50	

Water.	
Galvanized qts. 10 12 14	
Per doz.\$5 75 6 50 7 25	

PASTE.	
Asbestos Dry Paste:	
200-lb. barrel	\$15 00
100-lb. barrel	8 00
25-lb. pail	3 25
10-lb. bag	1 00
5-lb. bag	55
2½-lb. cartons	30

PINCERS.	
All V. & B.	
Carpenters', cast steel,	
No. ... 6 8 10 12	
Each \$0 45 \$0 52 \$0 61 \$0 71	
Blacksmiths', No. 10.....	\$0 64

PIPE.	
Conductor	
"Interlock" Galvanized.	
Crated and nested (all	
gauges)	60-20%
Crated and not nested	
(all gauges)	60-15%
Square Corrugated A and B	
and Octagon.	
20 Gauge	60-10%
28 "	60-10%
36 "	60-10%
24 "	60-10%
"Interlock."	
Crated and nested (all	
gauges)	60-20%
Prices for Galvanized Toncan	
Metal, Genuine O. H. Iron, Lyon-	
more Metal and Keystone C. B.	
on application.	

Stove.	Per 100 joints
26 gauge, 6 inch E. C.	
nested	17 00
26 gauge, 7 inch E. C.	
nested	19 00
28 gauge, 5 inch E. C.	
nested	14 00
28 gauge, 6 inch E. C.	
nested	15 00
28 gauge, 7 inch E. C.	
nested	17 00
30 gauge, 5 inch E. C.	
nested	12 00
30 gauge, 6 inch E. C.	
nested	13 00
30 gauge, 7 inch E. C.	
nested	15 00
T-Joint Made up,	
6-inch, 28 ga.per 100	32 50

Furnace Pipe.	
Double Wall Pipe and	
Fittings	40-10%
Single Wall Pipe, Round	
Pipe Fittings	40-10%
Galvanized and Black	
Iron Pipe, Shoes, etc.	40-10%
Milcor Galvanized	40%
PLANES.	
Stanley Iron Bench.....	Net

PLIERS.	
(V. & B.)	
Nut, No. 2, each.....	\$2 50
" No. 5, each.....	64
" No. 25, each.....	69
Gas, No. 7, each.....	55
" No. 8, each.....	61
" No. 12, each.....	87
Lining or Crimping.	
No. 25, each	44
Button's Pattern.	
No. 6 each.....	61
No. 8 each.....	74
Double Duty, No. 104.....	50

POINTS, GLAZIERS'.	
No. 1, 2 and 3..per doz. pkgs.	65c

POKERS, STOVE.	
Wrt Steel, str't or bent,	
.....per doz. \$0 75	
Nickel Plated, coll	
handles	1 10

POKERS, FURNACE.	
Each	\$0 50

PULLEYS.	
Furnace Tackle....per doz.	\$0 50
per gross	6 00
" Screw (en-	
cased)....per doz.	\$0 85

Ventilating Register.	
Per gross	\$9 00
Small, per pair.....	0 30
Large, per pair.....	0 50

PUNCHES.	
Machine.	Each
V. & B., No. 11-13, 1½x6.	\$0 19
V. & B., No. 90, ¾x3.....	27
V. & B., No. 10, ¾x10.....	29
V. & B., No. 1-6, ¾x6.....	12

Center.	
V. & B., No. 50, ¾x4.....	\$0 14
Belt.	
V. & B., No. 101-103.....	\$0 24
V. & B. No. 25, ass't.....	3 80
V. & B., No 25, ass't.....	3 80

Samson Line.	
No. 1 Hand	Doz. lots or
	less
	40%
No. 2 Hand	3 doz. lots
	Less 40 & 5%
No. 4 Hand	6 doz. lots or
	more ..Less 50%
No. 3 Bench	Less than doz.
	lots... Less 25%
	Doz. lots or
	more...Less 40%
Extra Punches and Dies for	
Samson:	
No. 1 Hand	Less than doz.
	lots...Less 25%
No. 2 Hand	Doz. lots
	Less 33¼%
No. 4 Hand	3 doz. lots
	Less 40%
No. 3 Bench	6 doz. lots
	or more,
	..Less 40 & 10%

PUTTY.	
Commercial Putty, 100-lb.	
kits	\$3 55

QUADRANTS.	
Malleable Iron Damper.....	10%

FLOOR REGISTERS AND BORDERS.	
Cast Iron	25%
Steel and Semi-Steel.....	40%
Baseboard	40%
Adjustable Ceiling	
Ventilators	40%
Register Faces—Cast and Steel	
Japanned, Bronzed and Plated,	
4x6 to 14x14.....	40%
Large Register Faces—Cast,	
14x14 to 28x42.....	60%
Large Register Faces—Steel,	
14x14 to 28x42.....	65%

ROOFING.	
Per Square	
Best grade, slate surf. prep'd	\$1 85
Best talc surfaced.....	2 20
Medium talc surfaced.....	1 50
Light talc surfaced.....	55
Red Rosin Sheeting, per ten	\$72 00

ROPE.	
Cotton.	
Sisal.	
1st Quality, base.....	13¼c
No. 2	12¼c
Manila.	
1st Quality standard	
brands	15¼c
No. 2	14¼c
Hardware Grade, per lb.....	12¼c

SAWS.	
Butchers'.	
Atkins No. 2, 14-in.....	\$12 75
" No. 2, 18-in.....	14 30
" No. 7, 16-in.....	16 85
" No. 2, 22-in.....	15 92
" No. 7, 20-in.....	18 05
" No. 7, 24-in.....	20 20
" No. 7, 28-in.....	22 35

Compass.	
Atkins No. 2, 10-in.....	\$ 5 45
" No. 10, 10-in.....	5 60
" Blades, No. 2, 10-in	3 25
" " No. 2, 10-in.	3 30

Cross-Cut.	
Atkins No. 221, 4-ft.....	\$3 03
" No. 221, 6-ft.....	4 45
" No. 221, 8-ft.....	6 07

Hand.	
Copper Burrs only.....	30%
" No. 96, 20-in.....	21 70

Hand and Rip.	
Atkins No. 54, 20-in.....	\$19 50
" No. 54, 26-in.....	24 40
" No. 53, 16-in.....	18 10
" No. 53, 20-in.....	22 90
" No. 53, 24-in.....	26 60
" No. 53, 28-in.....	31 45
" No. 53, 30-in.....	34 15

Keyhole.	
Atkins No. 1 complete.....	\$3 10
" No. 2 complete.....	3 70

Miter Box.	
Atkins No. 1, 4x20.....	\$32 65
" No. 1, 5x22.....	38 00
" No. 1, 6x22.....	42 20

Pruning.	
Atkins No. 20, 12-in.....	\$ 8 45
" No. 10, 16-in.....	18 15

Wood.	
Atkins No. 202.....	\$ 7 19
" No. 318.....	8 75
" No. 308.....	15 50
" No. 1599.....	16 55

SCRAPERS.	
Box.	
No. 6, six blades each.....	25c
Hog.	
No. 6, each	25c
Floor (Stearns).	
No. 10, each.....	\$11 50

SCREEN DOOR HINGES.	
Cast Iron	gross \$13 00
Steel	" 9 50

SCREWS.	
Wood.	
F. H. Bright.....	80%
R. H. Blued.....	78%
F. H. Jap'd.....	74%
F. H. Brass.....	76%
R. H. Brass.....	74%

Sheet Metal.	
No. 7, ¼x ¼, per gross	\$0 55
No. 10, ¼x3/16, per gross	75
No. 14, ¼x ¼, per gross	90

SCREW DRIVERS.	
Uncle Sam Standard Head.	
2 inches, each.....	\$ 45
5 inches, each.....	52
8 inches, each.....	63
12 inches, each.....	1 02
Uncle Sam Insulated Head.	
3 inches, each.....	\$ 49
5 inches, each.....	57
8 inches, each.....	78
12 inches, each.....	1 14

SETS.	
Nail.	
V. & B.	
No. 100, 1½ cardboard	
boxes	doz. \$1 55
No. 100, in wooden boxes,	
.....	doz. 1 58
No. 20, assorted.....	doz. 39
No. 8, 1½ cardboard boxes,	
.....	doz. 1 25
No. 5, in wooden boxes,	
.....	doz. 1 30

Rivet.	
V. & B.	
Farmers'	\$0 18
Tinners' 3-4.....	0 40
" 00-0.....	0 40
Saw.	
Atkins No. 10.....per doz.	\$3 30
" No. 12.....	6 20

SHEARS.	
Nickel Plated, Straight,	Per Doz
" " " " " "	6" \$12 90
" " " " " "	7" 14 35
" " " " " "	8" 16 80
Japanned, Straight,	6" 11 40
" " " " " "	7" 12 40
" " " " " "	8" 13 80

SHEARS, TINNERS' & MACHINISTS'.	
Viking	\$22 00

Lennox Throatless.	
No. 18	35%
Shear blades	10%
(f.o.b. Marshalltown, Iowa.)	

Pearless Steel Squaring.	
Foot Power.	
No. 1—30", 18 ga. cap.....	15%
No. 2—36", 18 ga. cap.....	15%
No. 4—52", 18 ga. cap.....	15%
No. 10—120", 22 ga. cap.....	15%
No. 4A—52", 16 ga. cap.....	15%

Cast Iron Foot Power.	
No. 61, 30", 18 ga. cap.....	15%

Power Driven.	
(No. 100 Series, 2 Shaft Drive.)	
No. 142—42", 18 ga. cap.....	15%
(No. 200 Series, 2 Shaft Under-	
neath Drive.)	
No. 242—42", 14 ga. cap.....	15%
(No. 300 Series, 3 Shaft Under-	
neath Drive.)	
No. 342—42", 10 ga. cap.....	15%
No. 372—72", 10 ga. cap.....	15%
(No. 500 Series, 3 Shaft Under-	
neath Drive.)	
No. 596—96", 10 ga. cap.....	15%
No. 600 Series, 3 Shaft Under-	
neath Drive.)	
No. 6120—120", 3/16" cap.....	15%

SHOES.	
Milcor.	
Galv. Std. Gauge, Plain or	
corr. round flat crimp.....	65%
26 gauge round flat crimp.....	49%
24 gauge round flat crimp.....	16%
Conductor	65%

SHOVELS AND SPADES.	
Coal.	
Hubbard's.	
No.	A B C D
1	\$16 00 15 10 14 45 13 70
2	16 35 15 60 14 35 14 10
3	16 75 16 00 15 25 14 40
4	17 10 16 35 16 60 14 35

Post Drains & Ditching.	
Hubbard's.	
Size	A B C
14"	\$17 15 \$16 40 \$15 40
16"	17 50 16 75 16 00
18"	17 85 17 10 16 35
20"	18 20 17 45 16 70
22"	18 55 17 80 17 05

Alaska Steel.	
D-Handle	per doz. \$2 50
Long Handle	" 3 00

SIFTERS.	
Genuine Hunters, doz.....	\$2 50

SKATES.	
Ice, Men's and Boys'. Per Pair	
Key Clamp—rocker—bright	
finish	\$ 74
Key Clamp—rocker—nickel	
finish	1 10
Key Clamp—rocker—pol-	
steel	1 30
Key Clamp—rocker—pol-	
Skate outfits	4 75
Women's and Girls'. Per Pair	
¾" Key Clamp—rocker.....	\$1 31
" " " " " " " " " " " "	hook..... 1 33
Ice Skate outfit.....	5 00

Roller.	
Ball Bearing—Boys'	\$1 45
Ball Bearing—Girls'	1 55

There are Two Kinds of Galvanized Shingles—hand dipped and those stamped from galvanized sheets.



THE hand dipped shingles are the finest grade. These are immersed, each separately, in molten zinc, after they have been cut and formed out of tin plate.

The other grade shingles are those that are stamped from galvanized sheets. Both types are described fully in our booklet "Concerning that Roof." A post-card will bring a copy.

Cortright Metal Roofing Co.
Philadelphia Chicago

Cortright Metal Shingles

CHICAGO STEEL CORNICE BRAKES

STANDARD OF THE WORLD



THE BEST BRAKE FOR ALL PURPOSES
Most Durable, Easiest Operated, Low in Price
Made in All Lengths and to Bend All Gauges of
Metal. Over 15,000 in use

WRITE FOR PARTICULARS

DREIS & KRUMP MFG. CO., 2915 S. Halsted Street, CHICAGO



Because of noiseless flame,
durability and remarkable
efficiency Torrid Tinners
Furnaces are displacing all
others of their type.



Geo. W. Diener Mfg. Co., Chicago, Ill.

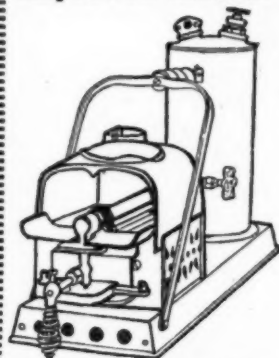
THE BEST GENERAL UTILITY FIRE POT



For melting metals, heating soldering coppers and general shop and factory use, the No. 1 Double Needle Fire Pot is the best. The improved burner burns the lower grades of gasoline perfectly, producing the highest heat. The gas orifice is cleared by using upper needle. Both needles are blunt, overcoming enlarged gas orifice and other burner troubles. No. 1 is the ideal Fire Pot for all outdoor work in the wind. The top section is removable which makes an open fire, similar to a Blow Torch. Jobbers supply at factory prices. Ask for a catalog.

CLAYTON & LAMBERT MFG. CO.
10635 Knodell Ave., DETROIT, MICH., U. S. A.

Improved Models of Soldering Furnaces



Have you seen the improved models? The greatest line of Soldering Furnaces today on the market. They should be. There is more experience behind them. Forty-eight years of it! The Gems were popular before the majority or present day furnaces were heard of. It is the oldest, the recognized standard Soldering Furnace today.

Look these models over. Each adds its class. Line them up and take your choice.

Do you want a Catalog?

BURGESS SOLDERING FURNACE CO.

Improved No. 3 Gem with Pump Department A COLUMBUS, OHIO



BUILT FOR SERVICE AND GUARANTEED TO GIVE IT

Although prices today on "ALWAYS RELIABLE" furnaces and torches are ridiculously low, these articles are now made stronger, safer, and better than ever before. Only new and first class material is used. Experienced men only are employed. As the result, the best tools are produced.

It will pay you to investigate this line now. A trial will soon convince you that you can increase your sales greatly by stocking "ALWAYS RELIABLE" furnaces and torches.

Jobbers supply at factory prices.

OTTO BERNZ CO., INC.
Newark, N. J. Established 1876

COVERED BY SEVERAL PATENTS
OTHER PATENTS PENDING
No. 50 Furnace, 3 Quarts
No. 60 Furnace, 1 Gallon
Gasoline - Kerosene

DOUBLE BLAST FIRE POTS

Gasoline Burning



The GENERATOR used in DOUBLE BLAST FIRE POTS is the most powerful generator ever put on a fire pot. It is made of brass and will not rust or corrode. It has no packing of any kind, and as it has no small channels it cannot clog but will always burn a blue flame. Our No. 25 Fire Pot shown herewith has a large brass pump one inch in diameter. The tank is made of galvanized steel and is firmly fastened to the base. The burner on this fire pot is so arranged that the two hot blasts are forced from the outside to the center so that the iron in the fire receives both hot blasts. There are more features that you should know about.

Our latest catalog describes our line in full. Write for it today.

DOUBLE BLAST MFG. CO.
NORTH CHICAGO, ILL.

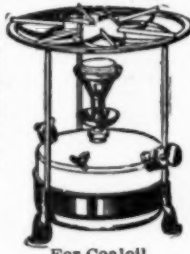
No. 25 DOUBLE BLAST
Tinner's Fire Pot

VESUVIUS

Blow Torches and Stoves



For Gasoline



For Coal Oil

have an extremely powerful flame. They are made of the best material that can be obtained and their construction insures long serviceability.

Write for Descriptive Circular Today

QUICK MEAL STOVE CO.

Div. American Stove Company

825 Chouteau Avenue

St. Louis, Mo.

SNIPS, TINNERS'.

Clover Leaf	40 & 10%
National	40 & 10%
Star	50%
Milcor	Net

SQUARES.

Steel and Iron	Net
(Add for bluing, \$3.00 per doz. net.)	
Mitre	"
Try	"
Try and Bevel	"
Try and Mitre	"
Fox's	per doz. \$6 00
Winterbottom's	10%

STAPLES.

Blind.	
Barbed	per lb. 21c@23c
Butter, Tub.	" 16@19c
Fence—	
Polished	per 100 lbs. \$5 45
Galvanized	" 6 15
Netting.	
Galvanized	per 100 lbs. \$6 54
Wrought.	
Wrought Staples, Hasps and	
Staples, Hasps, Hooks and	
Staples, and Hooks and	
Staples	50 & 10%
Extra heavy	35%

STONES.

Axe.	
Hindustan	per lb. New Nets
More Grite	"
Washita	"

Emery.

No. 126	per doz. New Nets
---------	-------------------

Oil Mounted.

Arkansas Hard	
No. 7	per doz. New Nets
Arkansas Soft	"
Washita No. 717	"

Oil—Unmounted.

Arkansas Hard per lb. New Nets	
Arkansas Soft	"
Lilly White	"
Queer Creek	"
Washita	"

Scythe.

Black Diamond per grg New Nets	
Crescent	"
Green Mountain	"
LaMelle	"
Extra Quinine	"
bog	"
Red End	"

STOPS, BENCH.

No. 10 Morrill pat-	
tern	per doz. \$11 00
No. 11 Stearns pat	
tern	" 10 00
No. 15 Smith pat-	
tern	" 7 00

STOPPERS, FLUE.

Common	per doz \$1 10
Gem, No. 1	" 1 10
Gem, flat, No. 3	" 1 00

STRETCHERS.

Carpet.	
Bullard's	per doz. \$2 90
Excelsior	" 5 25
Malleable Iron	" 70
Perfection	" 6 30
King	" 4 50

Wire.

O. S. Elwood, No. 1 per doz. Nets	
O. S. Elwood, No. 2	"

SWIVELS.

Malleable Iron	per lb. \$0 10
Wrought Steel	per gro. \$4 50

TACKS.

Bill Posters' 6-oz., 25-lb.	
boxes, per lb.	15c
Upholsterers' 6-oz., 25 lb.	
boxes, per lb.	15½c

TAPES, MEASURING.

Asses' Skin	List & 40%
-------------	------------

THERMOMETERS.

Tin Case	per doz \$0c & \$1 25
Wood Backs	" 2 00 & 12 00
Glass	" 13 00

TIES.

Bale.	
Less than Carload Lots	70%

TRAPS.

Mouse and Rat.	Per Gross
Sure Catch Mouse Traps	\$ 2 50
Vim Mouse Traps	2 50
Short Stop Mouse Traps	2 40
Wood Choker Mouse	
Traps, 4 hole	11 25

Per Doz.

Sure Catch Rat Traps	\$ 0 85
Dead Easy Rat Traps	0 90
Packed in One Bushel Band Stave	
Baskets.	

List per Bushel

Sure Catch Mouse Traps	
(350 Traps)	\$ 6 25
Short Stop Mouse Traps	
(350 Traps)	6 00
Sure Catch Rat Traps (54	
Traps)	3 90
Short Stop Rat Traps (54	
Traps)	3 75

Assorted Mouse and Rat Traps.

List per Bushel.

Sure Catch (216 Mouse	
Traps and 26 Rat	
Traps)	\$5 65
Short Stop (216 Mouse	
Traps and 26 Rat	
Traps)	5 40

TROWELS.

Cement.	
Atkins No. 6	\$19 50
" No. 9	25 50

TWINES.

White Cotton.	
Eureka, 4-ply	per lb. 30c
Jute.	
Cattle Wire — Galvanized	
catch weight spool, per	
3-ply and 6-ply Bale Lots	22½c

VALLEY.

Milcor	
Galv. formed or roll	60%

VENTILATORS.

Standard	30 to 40%
----------	-----------

VISES.

No. 700 Hand.	
Inches	4½ 5 5½
Doz.	\$11 15 13 00 14 35
No. 701. In.	4 5 6
Doz.	\$11 15 13 00 16 70
No. 1, Genuine Wentworth,	
Noiseless Saw	per doz. 9 25
No. 3, Genuine Wentworth,	
Noiseless Saw	per doz. 12 75
No. 500, All Steel Folding	
Saw	per doz. 16 00

WASHERS.

Over ½ in. barrel lots	
per 100 lbs.	\$6 25
Iron and Steel.	
In. 5/16 ¾ 1 1½ 2	
10½c 9½c 7½c 7½c 7 2/5c	

WEATHER STRIPS.

Metallic Stitched.	
¼ in., per 100 ft.	\$1 80
½ in., per 100 ft.	2 20
Wood and Felt.	
¼ in., per 100 ft.	\$1 56
½ in., per 100 ft.	1 56

WEIGHTS.

Hitching	per lb. Nets
Sash—f. o. b. Chicago	
Smaller lots, per ten	\$47 50

WHEEL BARROWS.

Common Wood Tray	\$3 50
Steel Tray	5 50
Steel leg, garden	6 00

WIRE.

Plain annealed wire, No. 3	
per 100 lbs.	\$3 70
Galvanized barb wire, per	
100 lbs.	4 10
Wire cloth — Black painted,	
12-mesh, per 100 sq. ft.	2 35
Cattle Wire—galvanized	
catch weight spool, per	
100 lbs.	4 60
Galvanized Hog Wire, 80 rod	
spool, per spool	3 95
Galvanized plain wire, No. 9,	
per 100 lbs.	4 15
Stove Pipe, per stone	1 10

WOOD FACES.

50% off list.

WRENCHES.

Coes Steel Handle, 6-in.	40-10%
" " " 8-in.	40-10%
" " " 10-in.	40-10%
" " " 12-in.	40-10%
Coes Knife-Handle, 6-in.	40-10%
" " " 8-in.	40-10%
" " " 10-in.	40-10%
" " " 12-in.	40-10%
Coes All Patterns	40-10%

WRINGERS.

No. 790, Guarantee per doz.	\$55 50
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No. 670, Domestic	48 50
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No. 740, Bicycle	52 50
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